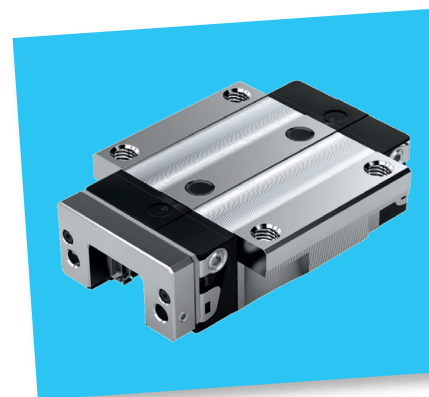
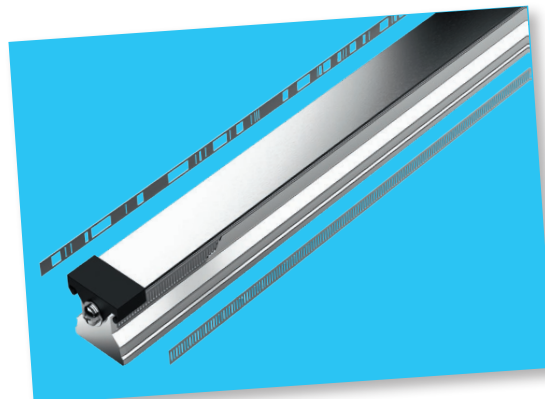
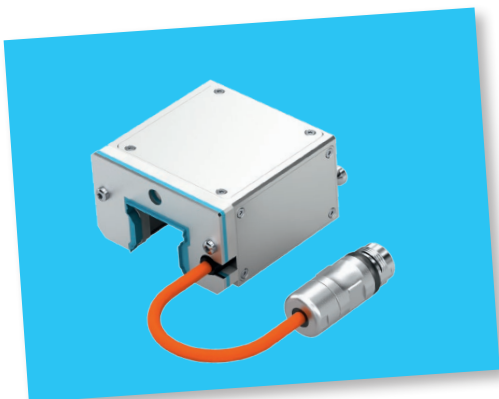
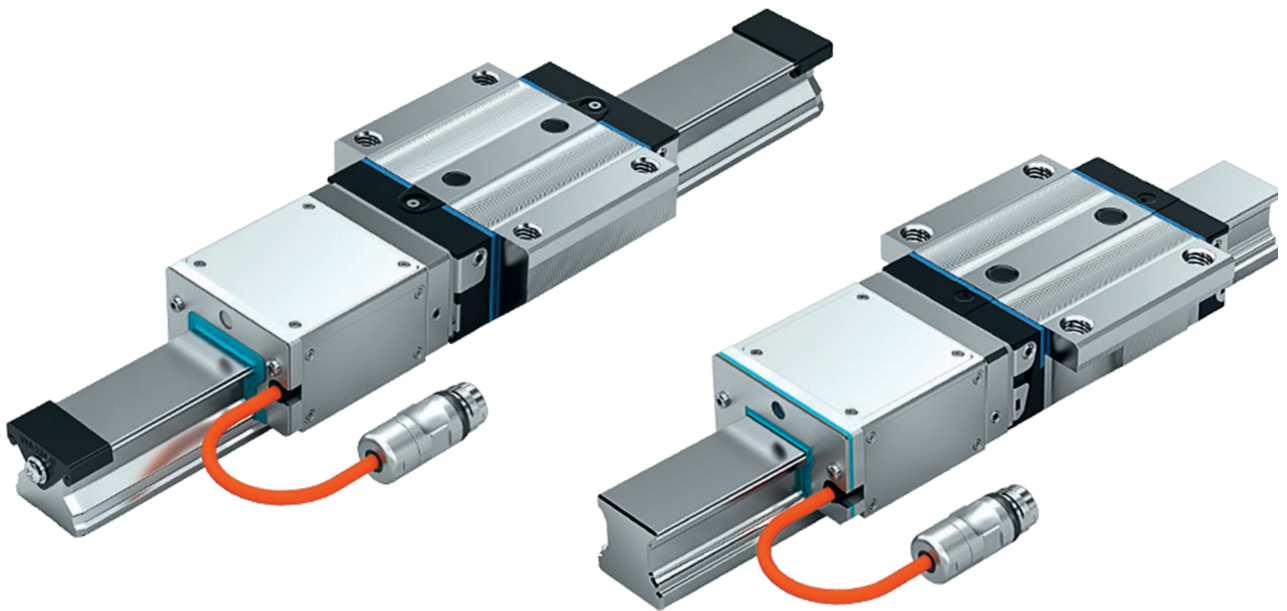


Integrated measuring system IMS

for ball and roller rail systems



New features at a glance

Modular, multi-part guide rails for IMS-A

The possibility of modular joints allows multi-part IMS-A rails to be configured very easily. This makes it possible to create rail tracks > 4500 mm (Page 24).

IMS-A interface DRIVE-CLiQ® with acceleration data

With the new ordering option "D4," in addition to the position data, acceleration data from the integrated MEMS sensor in the X/Y/Z direction can be cyclically read out and transmitted to SIEMENS controllers. This makes it possible to implement fundamentally new functions for machines, including in the area of condition monitoring (Page 12).

IMS-A interface BiSS-C with acceleration data

The all-digital synchronous serial interface for robust and efficient data transmission is a new feature. In addition to the normal version for position data, the BiSS-C also an order option for acceleration data of the integrated MEMS sensor (Page 16).

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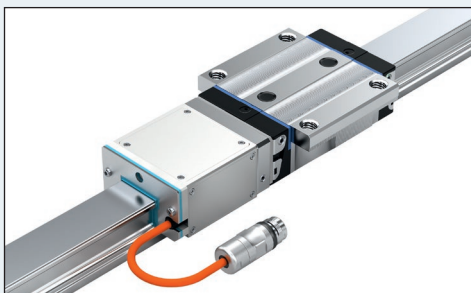
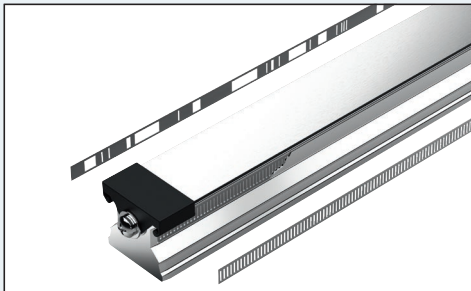
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IMS – Integrated measuring system: absolute/incremental – inductive – precise – integrated

Characteristic	Features	Advantages	Customer benefit
Absolute	<ul style="list-style-type: none"> ▶ Absolute measuring system with absolutely and incrementally coded scales 	<ul style="list-style-type: none"> ▶ Absolute position information straight after switching on the system ▶ Absolute position information is stored directly in the rail 	<ul style="list-style-type: none"> ▶ Space savings and cost advantages, as no additional components (e.g. battery) are required ▶ Time savings: Switching on without the need for a reference run minimizes the machine start-up time ▶ Quality improvement: Prevention of damage to the tool and workpiece, e.g. in the event of a power failure
Incremental	<ul style="list-style-type: none"> ▶ Incremental measuring system with incrementally coded scale and integrated reference marks 	<ul style="list-style-type: none"> ▶ Incremental position information straight after switching on the system ▶ Absolute position information is generated using the reference marks 	<ul style="list-style-type: none"> ▶ Space savings and cost advantages, as no additional components are required
Inductive	<ul style="list-style-type: none"> ▶ All components are made of steel ▶ Inductive measuring principle enables contactless measurement 	<ul style="list-style-type: none"> ▶ Scale and sensors cannot be destroyed by external magnetic fields ▶ Wear-free and maintenance-free ▶ Resistant to soiling and vibrations ▶ Insusceptible to EMC interference 	<ul style="list-style-type: none"> ▶ Reduced downtime and no maintenance costs, as it is wear-free and maintenance-free ▶ Universally applicable: <ul style="list-style-type: none"> – For all applications with a linear guide and external measuring system – In special applications, such as induction hardening systems, welding systems – For applications with shocks or vibrations (e.g. presses, linear motors)
Precise	<ul style="list-style-type: none"> ▶ Repeatability: $\pm 0.25 \mu\text{m}$ ▶ Position resolution: $0.025 \mu\text{m}$ ▶ System accuracy: $\pm 4 \mu\text{m/m}$ ▶ Longitudinal expansion coefficient similar to steel: $11 \times 10^{-6} \text{K}^{-1}$ 	<ul style="list-style-type: none"> ▶ Precise positioning even under dynamic load changes ▶ Excellent control loop dynamics due to high position resolution ▶ Low path deviation even with multi-axis interpolation ▶ No thermal compensation necessary for machining steel 	<ul style="list-style-type: none"> ▶ Increased quality through excellent workpiece quality ▶ Increased productivity through improved machine dynamics ▶ Cost optimization through elimination of thermal compensation
Integrated	<ul style="list-style-type: none"> ▶ Complete integration of the measuring function into the linear guide ▶ Interchangeability also for measuring systems ▶ MEMS acceleration sensor, integrated in the scanner housing 	<ul style="list-style-type: none"> ▶ Simple machine design due to complete integration ▶ No sealing air required as protection class IP67 ▶ Minimal installation time: The measuring system is also mounted simultaneously with the mounting of the guideway ▶ No adjustment of the measuring system required ▶ Very good protection of the measuring system components against damage ▶ Optimization of servicing through Rexroth interchangeable design, including for measuring system components ▶ Logbook function: Odometer and operating hours counter, cluster data for temperature and acceleration ▶ Cyclic transmission of acceleration data in X/Y/Z axis possible 	<ul style="list-style-type: none"> ▶ Time savings in terms of structural design, mounting, and commissioning ▶ Elimination of components, stop surfaces, and mounting surfaces compared to external position measuring systems ▶ Elimination of all components for sealing air ▶ Ordering of only the relevant components when servicing ▶ Detection of unacceptable operating conditions (crash, temperature) ▶ New machine functions: e.g. vibration analysis, process monitoring, or condition monitoring ▶ Acceleration data available without additional wiring and signal evaluation

Product description

The integrated length measuring system from Rexroth consists of:



Rexroth ball or roller runner block

- ▶ With ready-mounted adapter plate

Available in:

- ▶ Different sizes
- ▶ Different accuracy classes
- ▶ Different preload classes

Rexroth scanner

- ▶ Including sensors, electronics, connection cables, and connectors
- ▶ Already ready-mounted on the ball or roller runner block

Rexroth guide rail

- ▶ With integrated scale
- ▶ With integrated reference marks (IMS-I)
- ▶ With integrated absolute code band (IMS-A)
- ▶ Optionally with cover strip or caps (plastic or steel)

IMS from Rexroth:

Integrated **M**easuring **S**ystem

IMS-**I** (incremental)

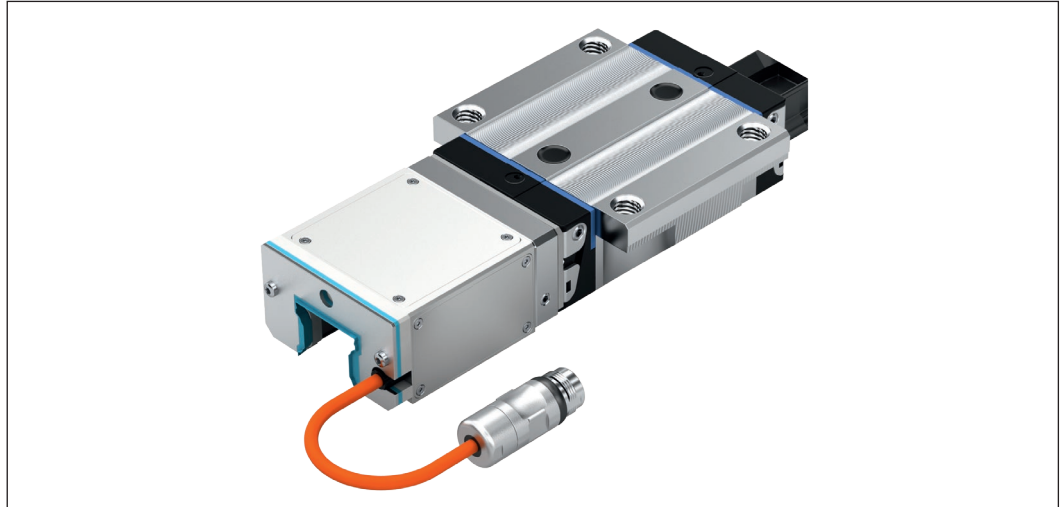
IMS-**A** (absolute)

Integrating the measuring technology into the linear guide results in a mechatronic system that combines the ability to guide mechanical loads and to measure length in one product.

No external measuring systems are needed.

Product description

Runner block



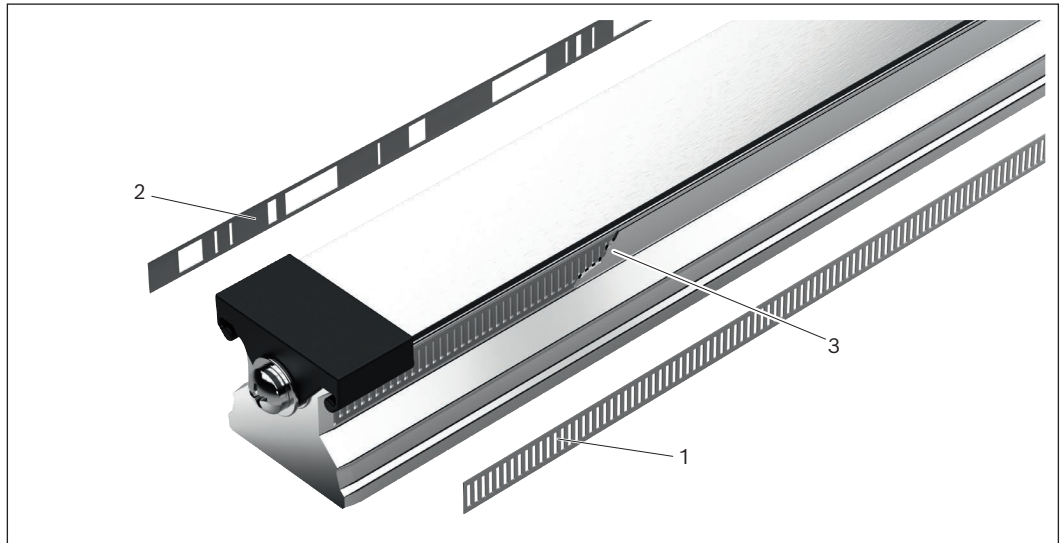
Runner block with mounted adapter plate and mounted scanner

- ▶ Same mounting hole pattern and connecting dimensions as standard runner blocks.
- ▶ An adapter plate allows the scanner¹⁾ to be replaced during servicing without removing the runner block.

¹⁾See the next chapter for more information.

Scanner fastening screws must be accessible. There must be sufficient room to pull the scanner over the rail end.

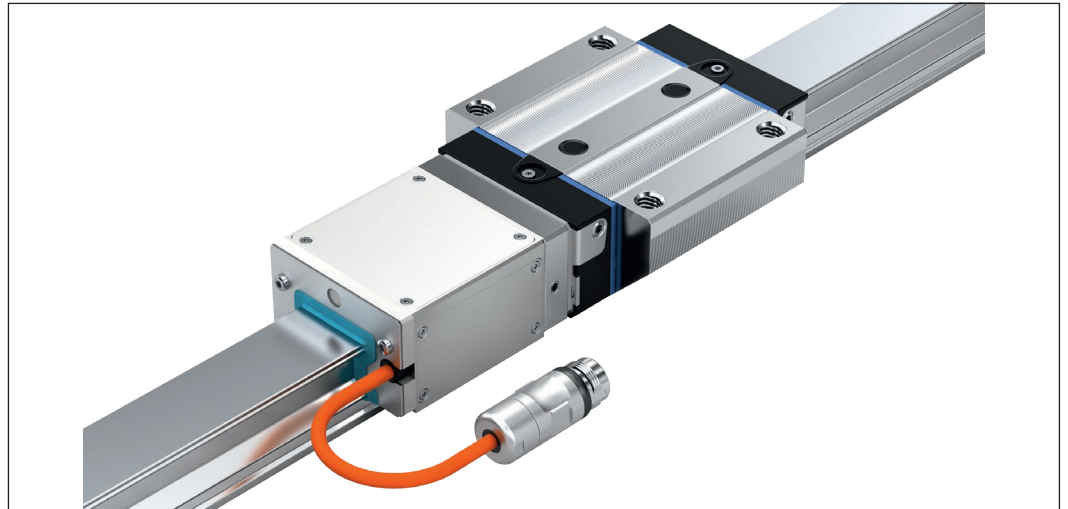
Guide rail



Guide rail with integrated steel scales

- ▶ Same mounting hole pattern and connecting dimensions as standard guide rails.
- ▶ Incremental scale (1), and optional absolute code band (2) (IMS-A) or reference marks (IMS-I).
- ▶ Scales (1/2) protected by a hermetically sealed welded stainless-steel band (3).
- ▶ See the following chapters for more information.

Integrated measuring system for ball and roller rail systems



The Rexroth ball and roller rail systems are available with fully integrated inductive length measuring system. The length measuring system consists of a scanner, a scale, reference marks, and the absolute code band. The scanner with sensors is mounted on the runner block. As it travels over them, it evaluates the scale, the reference marks or the absolute code band integrated in the guide rail. This mechatronic system combines the functions of guidance and measurement into one unit and opens up new, ideal opportunities in machine design.

Highlights:

Integrated measuring system

- ▶ Guide system and measuring system form a single unit, based on standard guide elements (use of standard runner block on IMS guide rail possible)
- ▶ No additional installation space required
- ▶ No additional mounting surfaces required for measuring systems
- ▶ No measurement inaccuracies due to parallelism offset between the measuring system and the guide system
- ▶ Retrofitting and replacement possible without any problems thanks to the proven Rexroth interchangeable design
- ▶ Position measurement directly on the workpiece/tool
- ▶ Protection class IP67 without additional measures
- ▶ Full integration of the measuring system components into the guide system means no complex mounting or adjustment work is needed
- ▶ Runner block, scanner, and guide rail are individually interchangeable

Inductive measuring principle

- ▶ Contact-free scanning ensures zero maintenance
- ▶ Resistant to water, oil, dust, shavings, etc.
- ▶ Insusceptible to magnetic fields
- ▶ One-piece guide rails: standard length up to 4 500 mm
- ▶ Multiple sensor units on one rail possible

Incremental measuring principle

- ▶ Precise position detection through a high-precision, incremental scale paired with individual reference marks
- ▶ High resolution due to 40 µm signal period

Absolute measuring principle

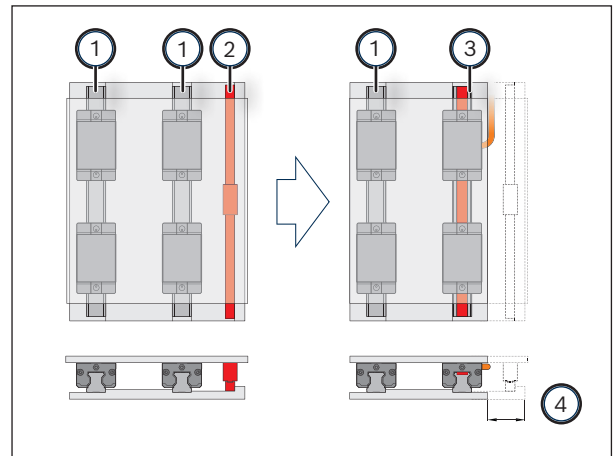
- ▶ Precise, absolute positioning by an additional absolute code band
- ▶ No battery necessary for buffering the absolute information

Your benefits

Compact machine design

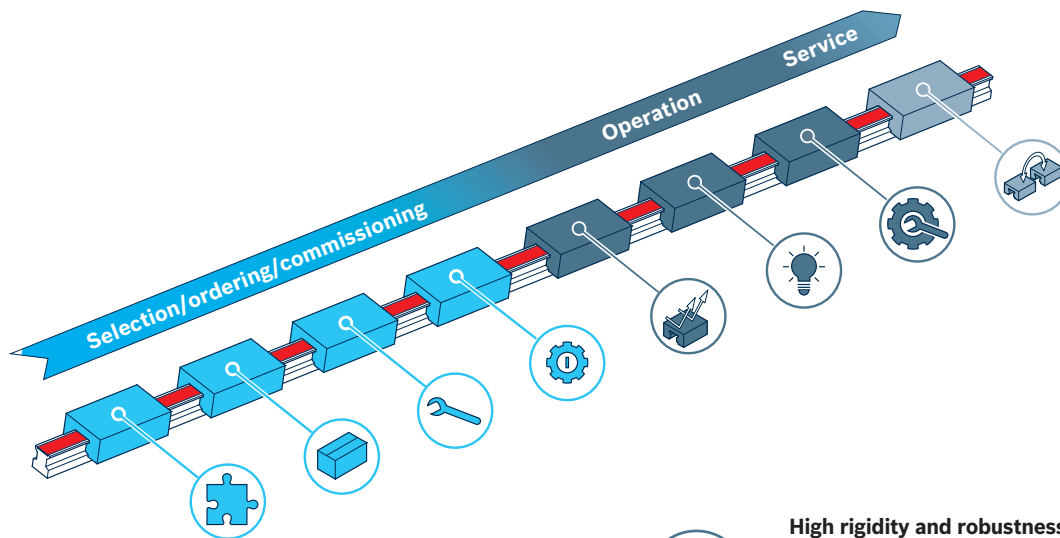
Space requirement for external length measuring system is eliminated

1. Linear guide
2. Linear encoder
3. Integrated measuring system IMS
4. Savings in terms of installation space

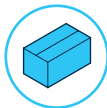


From structural design to service

The IMS offers a high degree of cost-effectiveness that extends over the entire life cycle. From engineering to installation and commissioning through to maintenance and service.



Simplified structural design
Fewer components, less installation space



Simplified scheduling and logistics
Fewer components



Simplified assembly
One mounting step – profiled rail system contains the complete measuring technology



Simplified commissioning
Guided system – no alignment of the scale and no adjustment of the scanner over the measuring distance necessary



High rigidity and robustness

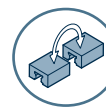
- ▶ Position measurement directly at the movement and protected installation of the measurement technology
- ▶ Consistent quality of the position measurement over the service life



Energy / media consumption
No sealing air necessary for protection class IP67

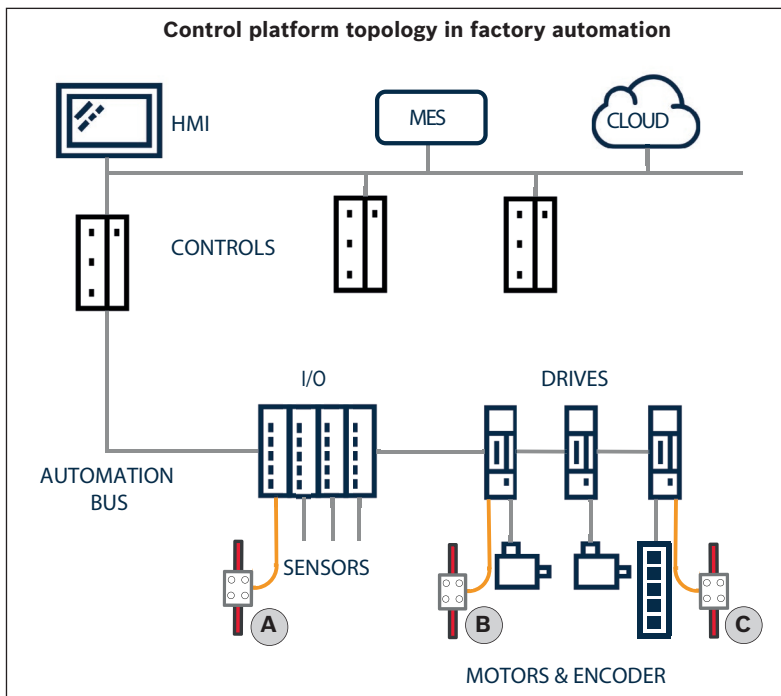


Maintenance & service
Measuring function maintenance-free due to non-contact measuring principles



Simple service
Proven Rexroth exchange construction

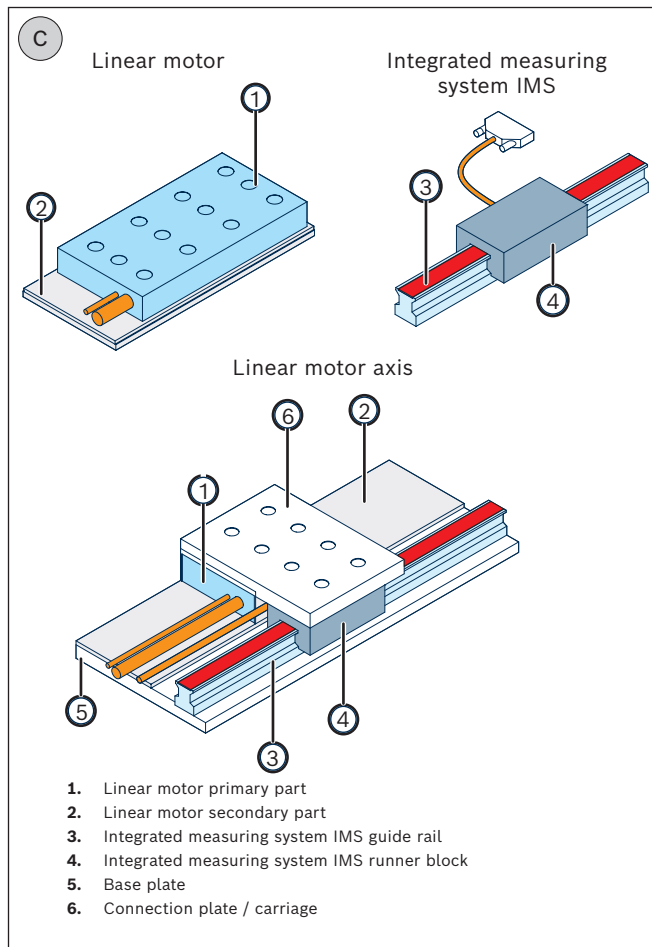
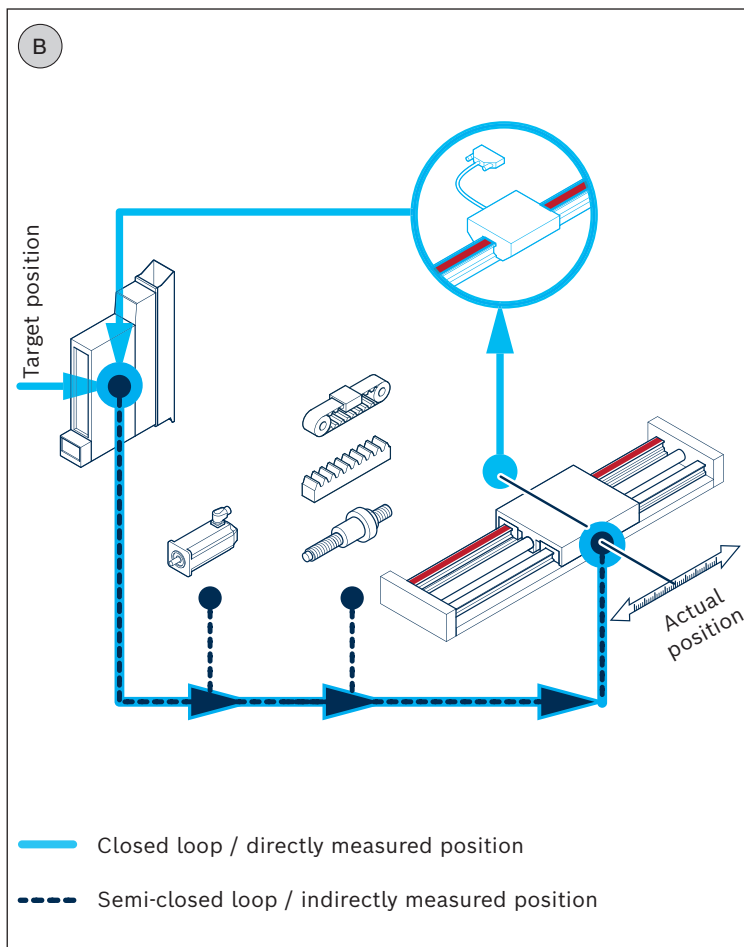
Applications in automation



Applications for the IMS in automation:

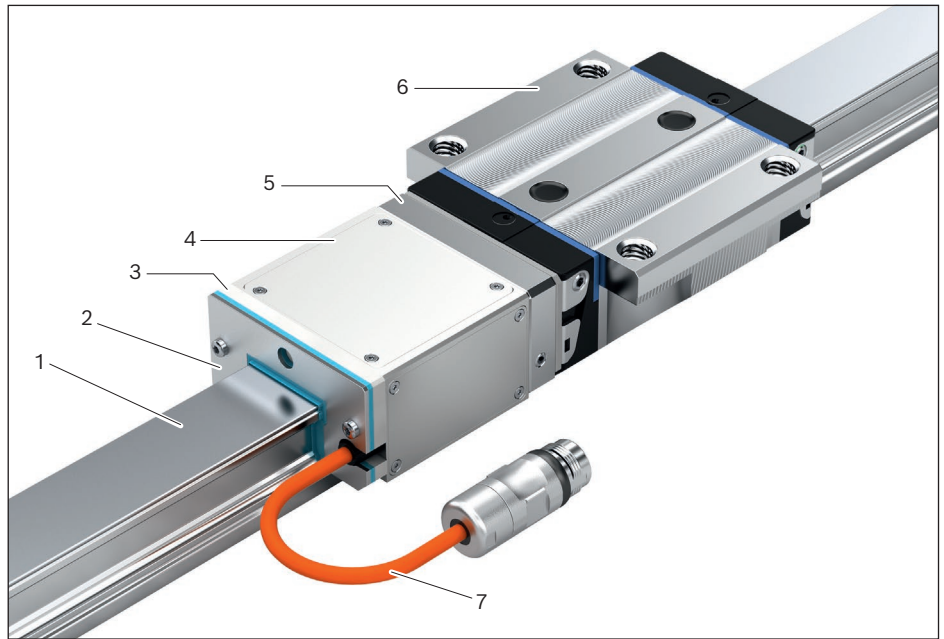
In the field of industrial automation, the IMS is used mostly in sensor-level applications, that is, on I/O modules or drives.

- A** Position sensor at I/O modules or digital indicators
- B** Closed control circuit: Increase in positioning accuracy at linear axes
- C** Drive systems with linear motors

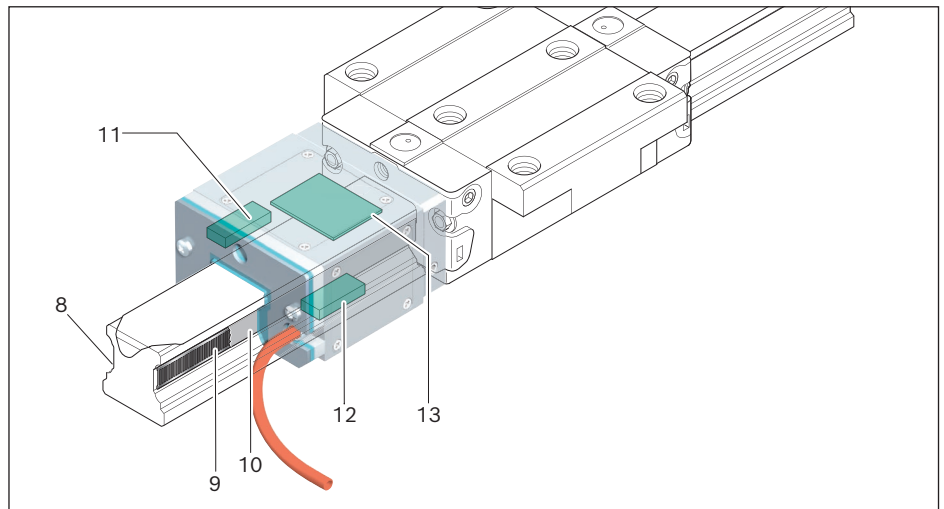


Structural design

- 1** Guide rail with scale, reference marks or absolute code band
- 2** Front seal
- 3** Support plate
- 4** Scanner
- 5** Adapter plate (fixed to the runner block)
- 6** Runner block
- 7** Cables and connectors



- 8** Reference marks or absolute code band
- 9** Incremental scale
- 10** Covered by welded stainless-steel band (on both sides, depending on version)
- 11** Sensor for reference marks or for absolute code band
- 12** Measuring sensor
- 13** Evaluation electronics with acceleration sensor



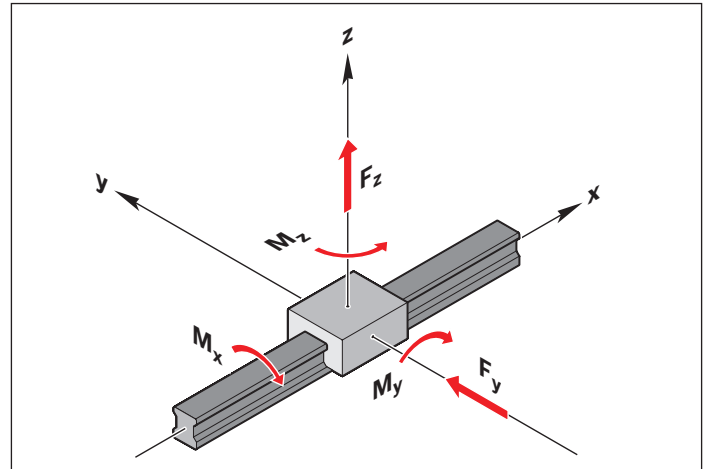
General technical data and calculations for runner block

Loads due to forces and moments on the runner block

The forces acting on the system are distributed among the runner blocks depending on the arrangement. The loads caused by forces and moments resulting from the effective forces need to be calculated for each runner block when performing the life expectancy calculation.

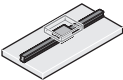
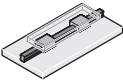
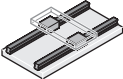
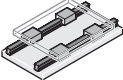
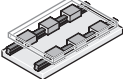
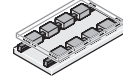
All load calculations assume an infinitely rigid mounting base and an infinitely rigid structure.

The life expectancy calculation for the IMS is analogous to the calculation of the life expectancy for profiled rail systems without a measuring system. See the corresponding ball/roller rail system catalog.



▲ Load on a single runner block due to forces and moments.

The following table shows the arrangements that are most commonly found in practice. For the IMS runner blocks, whichever arrangement is selected, the relevant values for $F_{y \max}$ and $M_{z \max}$ must be complied with in the application. For the respective values, see the relevant chapters for ball/roller runner blocks.

Version	Arrangement	Forces		Moments		
		in z-direction Tensile/compressive force	in y-direction Lateral load	about the X-axis Torsional moment	about the Y-axis Longitudinal moment	about the Z-axis Longitudinal moment
1	1 rail 1 runner block 	F_z	F_y	M_x	M_y	M_z
2	1 rail 2 runner blocks 	F_z	F_y	M_x	-	-
3	2 rails 2 runner blocks 	F_z	F_y	-	M_y	M_z
4	2 rails 4 runner blocks 	F_z	F_y	-	-	-
5	2 rails 6 runner blocks 	F_z	F_y	-	-	-
6	2 rails 8 runner blocks 	F_z	F_y	-	-	-

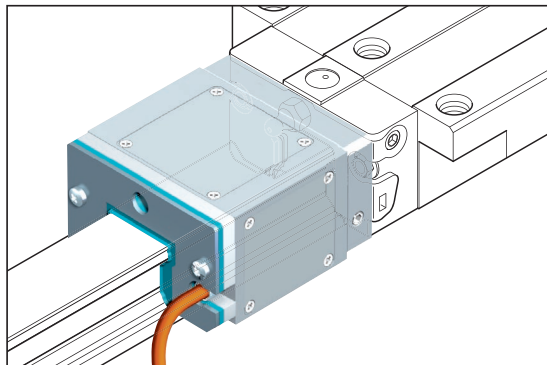
Description and technical data of scanner (IMS-I / IMS-A)

Scanner on the runner block

The basic construction of the scanner is explained using the example of a ball runner block. The construction of the scanner on the roller runner block differs only slightly. The scanner is secured to the runner block via the adapter plate. It is no wider or taller than the runner block. The hole pattern of the fastening bores of the runner block also remains unchanged. Advantage: The fastening of the runner block to the connection structure remains the same even with the measuring system. The scanner contains the contactless, inductive scanning system for the incremental or absolute measuring function. In addition, the scanner also contains the required electronics.

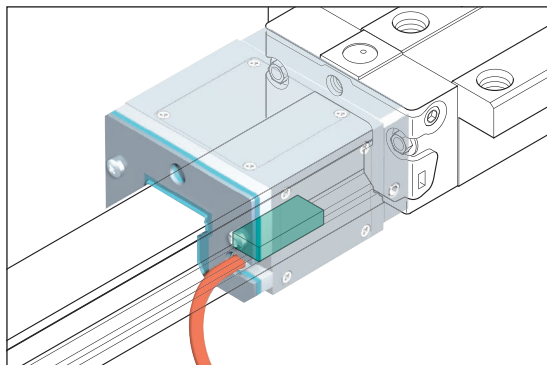
Scanner

The aluminum scanner housing accommodates all other parts of the scanner. It is screwed to an adapter plate that is permanently connected to the runner block, thus forming a single unit. The adapter plate allows the scanner to be replaced during servicing without disassembling the runner block. The housing protects the electronic components from getting dirty and shocks.



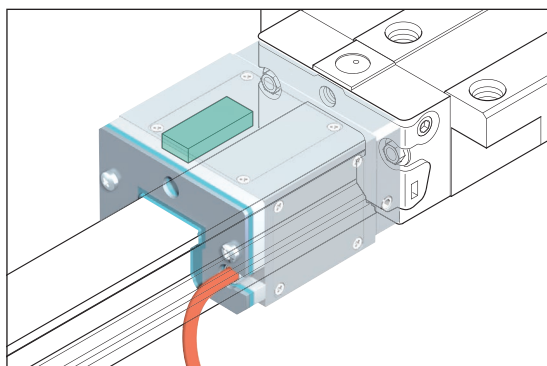
Measuring sensor

The measuring sensor, which scans the incremental scale in the guide rail without contact, is located on one side of the scanner. The measuring sensor consists of a large number of transmitter and receiver coils. The measuring sensor is always located on the side of the cable.



Reference/absolute sensor

The reference sensor or the absolute sensor is mounted on the opposite side of the measuring sensor. In IMS-I systems, the reference sensor scans the reference marks, and in IMS-A systems, the absolute sensor scans the absolute code band on the guide rail to determine the absolute position of the runner block on the guide rail.



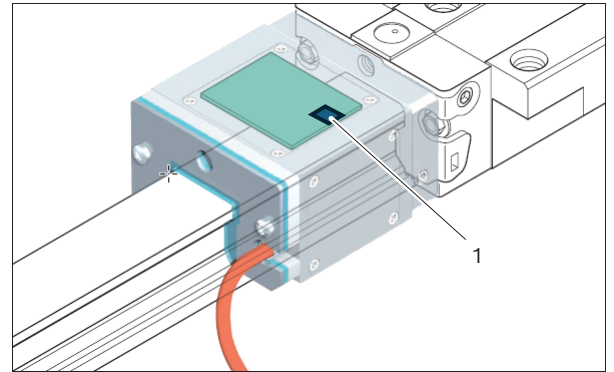
Connector/cable

The connector and cable connect the scanner to external electronics.

Evaluation electronics with acceleration sensor (MEMS)

The evaluation electronics contain all components for generating, processing, calibrating, and forwarding the signals. These signals are evaluated by external electronics (e.g. servo controller ctrlX Drive from Rexroth).

The MEMS sensor **(1)** integrated in the IMS allows cyclic acceleration data to be transmitted together with the position. This allows machine functions with high dynamic requirements (e.g. collision shutdown, frequency analyses, etc.) to be realized in a very simple way. Extended condition monitoring functions in the machine are enabled on the basis of the acceleration data. Depending on the selected interface option, the acceleration values for all three axes X, Y, and Z can be read out cyclically at the same time. Further operating data in the IMS can be transferred acyclically and thus enables logbook functions for monitoring the operating conditions of the IMS.

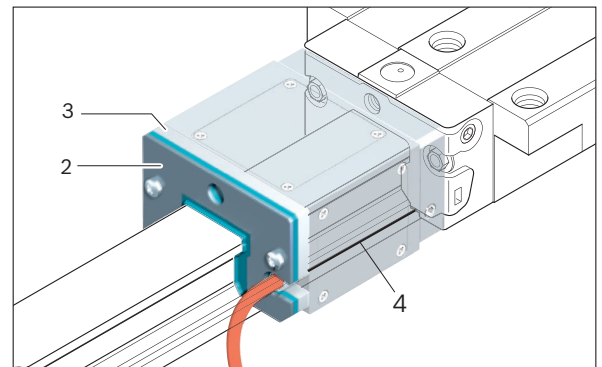


Seal

An additional front seal **(2)** is screwed onto the scanner for additional protection. This prevents water, oil, cooling lubricant, shavings, and dust from penetrating the end face of the scanner. The underside of the scanner is protected by longitudinal seals **(4)**.

Support plate

The support plate **(3)** is mounted between the front seal and the scanner. It has minimal clearance to the guide rail and limits vibrations of the scanner in applications with extreme vibrations and shocks.



Technical data

Vibration (55 – 2000 Hz)	≤ 100 m/s ²
Shock (11 ms)	≤ 500 m/s ²
Protection class (DIN EN 60529)	IP 67
Operating temperature	0 ... 50 °C
Storage/transport temperature	–10 ... 70 °C
Relative humidity during storage	max. 95%
Relative humidity in operation	max. 80% at 20 °C
MTTF	100 years

Further technical information can be found in the document "Instructions for electrical interfaces" R320103166.

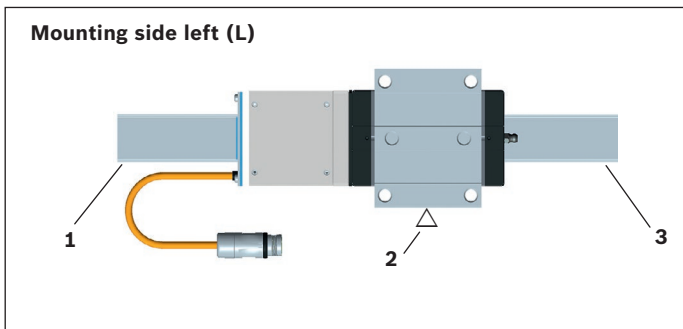
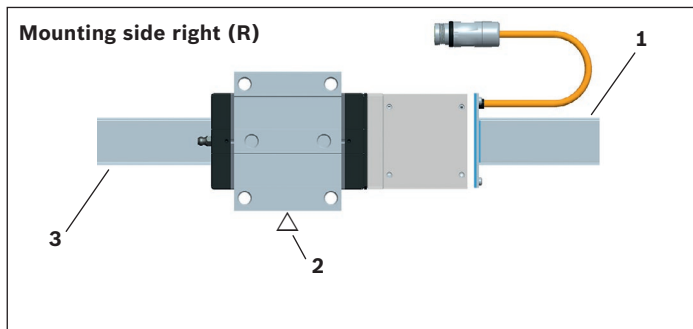
Description and technical data of scanner (IMS-I / IMS-A)

SafeMotion

None of the output signals may be used for drive-integrated safety functions of the controller. Exceptions: Safety functions that do not use the encoder signals.

Scanner mounting sides

The definition of the mounting side specifies the side on which the reference edge (2, Δ) of the runner block is located with respect to the incremental scale (1) and the spacing T_1 (3) in the guide rail when the scanner is mounted.



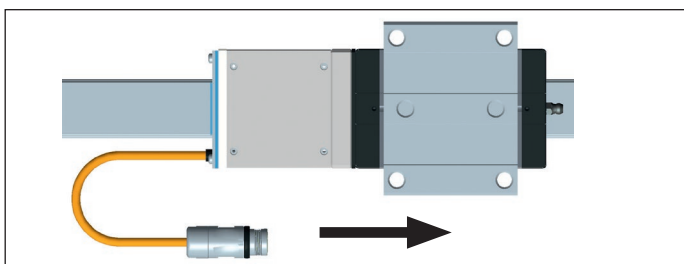
Notes for structural design:

The push-on direction of the IMS runner block must be specified during structural design.

Push the IMS runner block so that the cable outlet is always on the side of the incremental scale of the (1) IMS guide rail.

Direction of movement

Direction of movement for positive counting direction (for analog and digital output signals)



Description and technical data of scanner (IMS-I)

Interfaces

Analog output signals, sinusoidal signals 1 V_{SS}

(option I1)

Incremental signals

The sinusoidal incremental signals A and B are phase-offset by 90° to each other and have a typical signal amplitude of 1 V_{SS}.

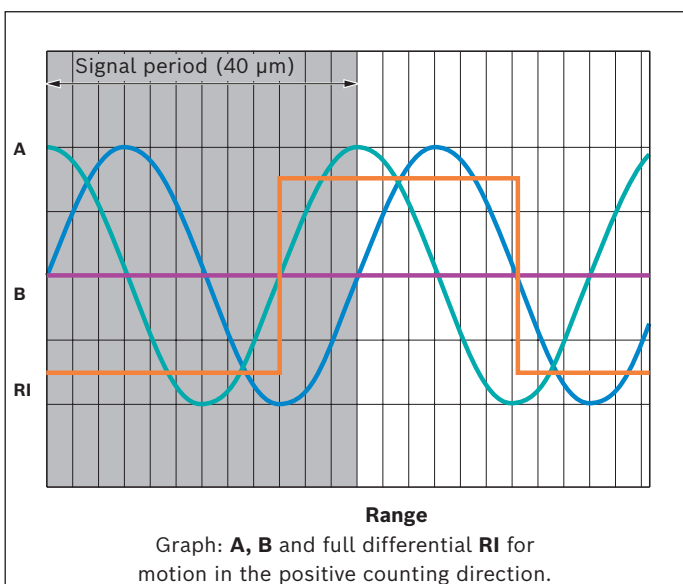
Signal amplitude: A, B = 1 V_{SS} (±0.1 V)

The illustrated output signal sequence (B phase-lagged to A) applies to scanner movements in the positive counting direction (see graph). The sinusoidal signals are also available for the IMS-A interfaces HIPERFACE® and SSI (synchronous-serial interface).

Reference mark signal

The differential reference mark signal RI has an amplitude of approximately -0.7 V when inactive (low).

In the active state (high), the amplitude is +0.7 V.

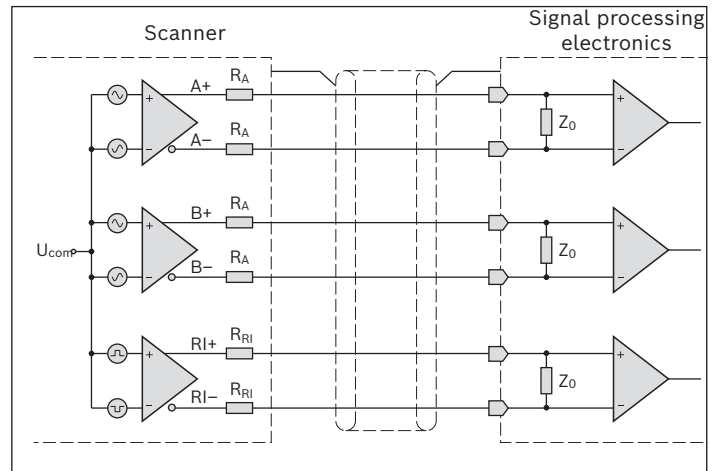


Description and technical data of scanner (IMS-I), continued

Interface circuitry for analog output signals

The specified amplitudes apply to the operation with a terminating resistor $Z_0 = 120 \Omega$.

$$\begin{aligned} R_A &= 27.40 \Omega \\ R_{RI} &= 0 \Omega \\ Z_0 &= 120.00 \Omega \\ U_{comp} &= 1.65 \text{ V} \end{aligned}$$



Digital output signals

Square-wave output signals TTL through integrated interpolation unit (option I2, I3, I4)

Incremental signals

The digital incremental signals A and B comply with the EIA/TIA-422-A standard. They are phase-shifted by 90° and have the following signal levels:

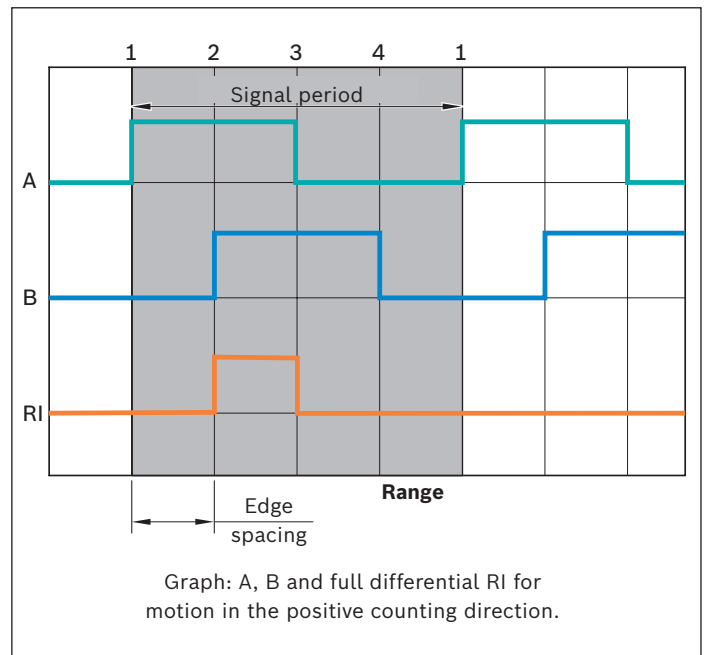
$$\begin{aligned} U_{high} &> 2 \text{ V} \\ U_{low} &< -2 \text{ V} \end{aligned}$$

The switching response times are $\leq 100 \text{ ns}$ at a capacitive load of $\leq 1000 \text{ pF}$.

Reference mark signal

The differential reference mark signal RI has the same electrical characteristics as the incremental signals.

The specified amplitudes apply to operation with a terminating resistor $Z_0 = 120 \Omega$.



Resolution

Measuring systems with digital output signals are available in resolutions of $1 \mu\text{m}$, $5 \mu\text{m}$, and $10 \mu\text{m}$.

Option	Resolution (edge spacing) (μm)	Signal period (μm)	Max. measuring head speed (m/s)
I2	1	4	2.0
I3	5	20	5.0
I4	10	40	5.0

Technical data IMS-I

Voltage supply	4.75 V ... 12.6 V (at the connector) Overvoltage protection: max. 18 V DC
Current consumption	1 Vss/5 V: 300 mA; 1 Vss/12 V: 170 mA; TTL/5 V: 350 mA; TTL/12 V: 190 mA

Description and technical data of scanner (IMS-A)

Interfaces

HIPERFACE® (option: HF)

HIPERFACE® is a protected trademark of SICK STEGMANN GmbH.

HIPERFACE® stands for "high-performance interface" and is a hybrid interface. It consists, firstly, of the analog process data channel, on which sine and cosine signals (analog option I1) are transmitted differentially and almost without delay, and, secondly, of the bidirectional parameter channel for transmitting the absolute position and other various parameters.

Furthermore, an electronic name plate is available for identifying and storing drive-relevant information in the motor feedback. IMS-A with HIPERFACE® interface is the optimal solution for REXROTH drive systems.

Technical data

Voltage supply	7 V ... 28 V (at the connector)
Current consumption	250 mA at 7 V
Maximum measuring speed	5 m/s
Resolution of the digital interface	1.25 µm

BiSS-C: Bidirectional serial synchronous (BiSS) interface (options: BI, B4)

BiSS-C is a digital synchronous serial interface designed specifically for high-speed communication. It is characterized by robust and efficient data transmission, which enables precise position and speed detection in real time. BiSS-C uses a differential signal transmission (RS422 standard) that is unsusceptible to electromagnetic interference. This ensures reliable data integrity even in industrial environments.

In addition to transmitting the position values, the acceleration values of the integrated MEMS acceleration sensor can also be transmitted in real time (option B4). With this additional sensor data, IMS enables extended condition monitoring functions in your application.

Technical data

Option	BI	B4
Acceleration data	no	cyclic, +/- 16g
IMS parameters (log book)	yes	yes

Voltage supply	4.6 V ... 12.6 V (at the connector)	
Current consumption	125 mA at 12 V	
Maximum measuring speed	5 m/s	
Resolution of position value	0.025 µm	
Resolution of acceleration sensor		4.8 x 10 ⁻³ m/s ²

SSI - Synchronous serial interface (options: S1, S2, S3, S4)

With the synchronous serial interface (SSI), the absolute position information is transferred to higher-level evaluation electronics via serial data transmission. Parallel to the serial data transmission, the incremental sinusoidal and cosine signals (analog option I1) are also available for enhancing the control performance.

For different requirements of the evaluation electronics with regard to position resolution, the following SSI configurations can be selected:

Technical data

Option	S1	S2	S3	S4
Coding	Binary	Binary	Binary	Gray
Number of bits (position)	22	25	27	28
Parity	straight	straight	-	-
Error bit	yes	yes	yes	no
Warning bit	yes	yes	no	no
Resolution of the digital interface / μm	10	1	0.25	0.125
Max. clock frequency / MHz	2			
Voltage supply	4.75 V ... 28 V (at the connector)			
Current consumption	5 V, 300 mA			
Maximum measuring speed	5 m/s			

Description and technical data of scanner (IMS-A)

Interfaces

DRIVE-CLiQ (options: DQ, D4)

DRIVE-CLiQ is a protected trademark of Siemens.

This system interface is used to connect measuring systems to drive components from Siemens. IMS-A with DRIVE-CLiQ interface enables simplified commissioning, as the interface has an electronic name plate. This name plate contains IMS-A-specific data that enables error-free configuration of the drive system during commissioning.

In addition to transmitting the position values, the acceleration values of the integrated MEMS acceleration sensor can also be transmitted cyclically in real time (option D4). With this additional sensor data, IMS enables extended condition monitoring functions in your application.

Technical data

Option	DQ	D4
Acceleration data	no	cyclic, +/- 16g
IMS parameters (log book)	yes	yes
Voltage supply		
13.2 V ... 30.8 V (at the connector)		
Current consumption		
110 mA maximum		
Maximum measuring speed		
5 m/s		
Resolution of position value		
0.025 µm		
Resolution of acceleration sensor		
4.8 x 10 ⁻³ m/s ²		

FANUC (option: FN)

IMS-A with FANUC serial interface αi provides robust, reliable, and purely serial communication for high-performance machine tools with FANUC controls.

Technical data

Voltage supply	4.6 V ... 12.6 V (at the connector)
Current consumption	350 mA maximum
Maximum measuring speed	5 m/s
Resolution of position value	0.025 µm

Cable

Structural design

- ▶ Sheath: Polyurethane (PUR)
- ▶ Color: RAL 2003 orange
- ▶ Outer diameter 5.0 ± 0.30 mm
- ▶ Oil resistant
- ▶ RoHS compliant
- ▶ UL type 20963

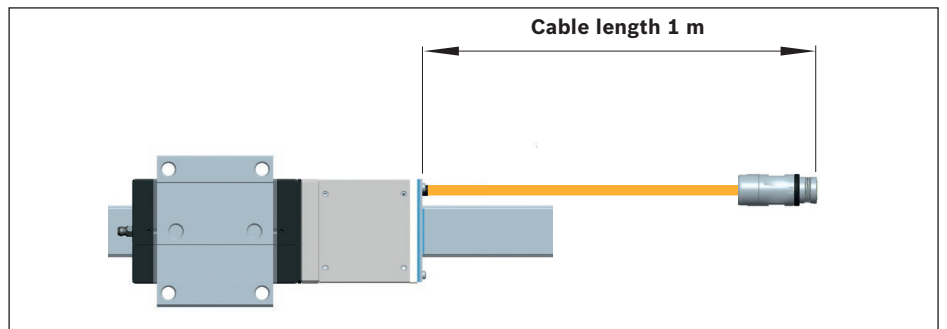
Mechanical properties

(standard cable)

Bending radius for one-time bending (stationary): 20 mm

Alternating bends not permitted

Cable length

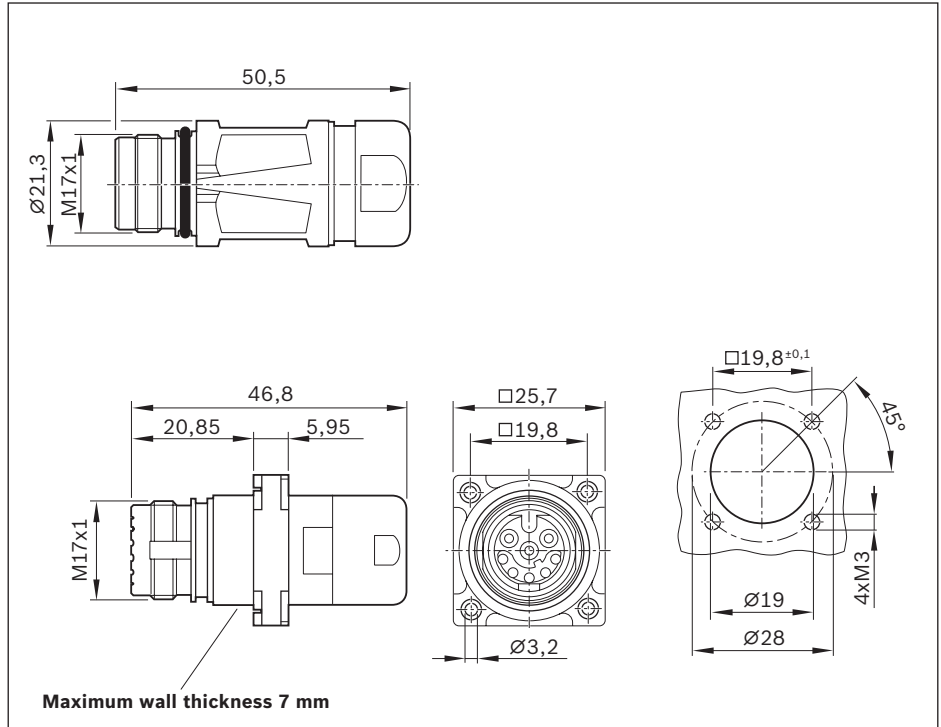


Description and technical data of connectors and cables

Connector type

Protection class: IP67 (when locked)

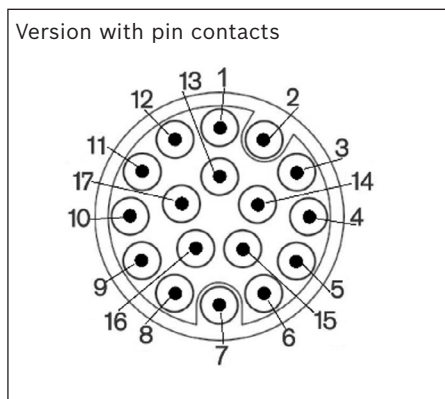
▼ Option A: RGS1722 (round connector)



▼ Option B: RGS1714 (flanged housing) for front and rear wall mounting

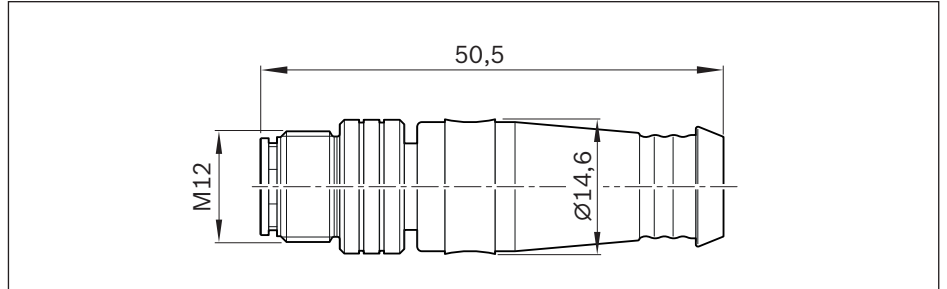


▼ Connector view of contact side for A and B

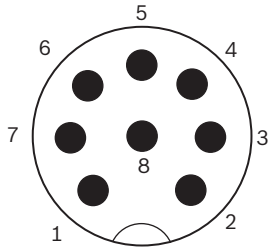


M17, 17 pin Connei Pin no.	Signal designation	Function
1	Inner shield	Inner cable shield
2	A +	Analog/digital path information
3	A -	
4	GND	Voltage supply GND
5	B +	Analog/digital path information
6	B -	
7	Data +	IMS-I: for service purposes only
8	Data -	IMS-A: HIPERFACE®/SSI data line
9	EncCLK+ / RI+	IMS-I: Reference mark signal
10	EncCLK- / RI-	IMS-A: SSI CLOCK
11	VDD	Voltage supply VDD
12	n.c.	
13	n.c.	
14	n.c.	
15	0 V sense	Sense line* GND
16	5 V sense	Sense line* VDD
17	n.c.	
Housing	Outer shield	Outer shield contacted via connector housing

* If there is no voltage adjustment via sense lines available, the sense lines can be switched parallel to the power supply lines.

▼ Option H: M12 / 8-pin for BiSS-C


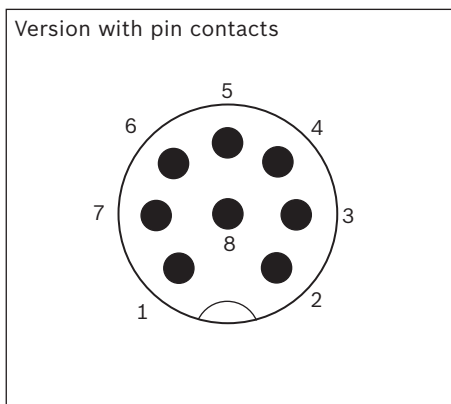
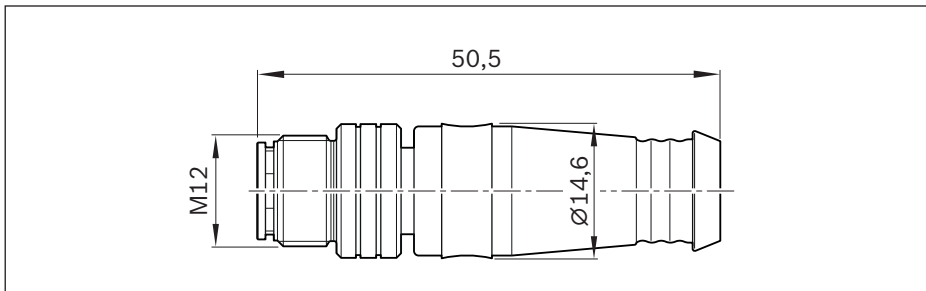
Version with pin contacts



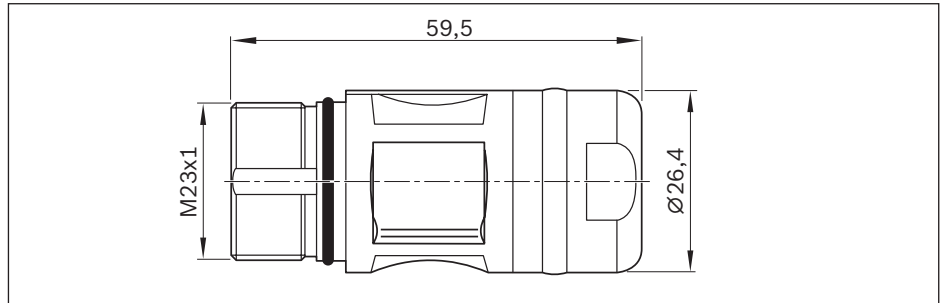
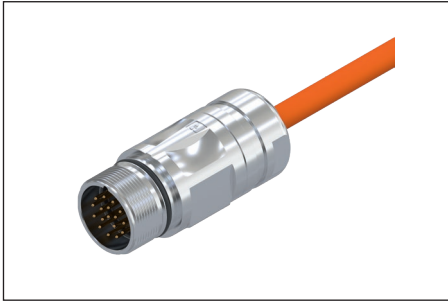
M12, 8 pin Pin no.	Signal des.	Function
1	n.c.	
2	n.c.	
3	SL+	Slave data positive
4	SL-	Slave data negative
5	0 V	Voltage supply 0 V
6	MA-	Master clock negative
7	MA+	Master clock positive
8	12 V	Voltage supply 12 V
Housing	Outer shield	Outer shield contacted via connector housing

Description and technical data of connectors and cables

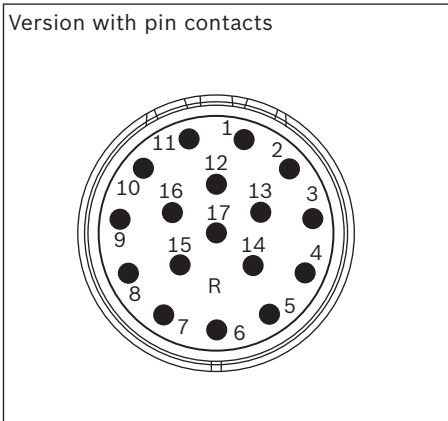
▼ Option C: M12 / 8-pin for DRIVE-CLiQ



M12, 8 pin Pin no.	Signal des.	Function
1	24 V	Voltage supply 24 V
2	Data +	for service purposes only
3	RXP	Receive data positive
4	RXN	Receive data negative
5	0 V	Voltage supply 0 V
6	TXN	Transmission data negative
7	TXP	Transmission data positive
8	Data -	for service purposes only
Housing	Outer shield	Outer shield contacted via connector housing

▼ **Option D: M23 / 17-pin for FANUC**


Version with pin contacts



M23, 17-pin Pin no.	Signal des.	Function
1	5 V	Voltage supply 5 V
7		
8	RD	αi data line positive
9	*RD	αi data line negative
10	GND	Voltage supply GND
14	Data+ / SD	for service purposes only
17	Data- / *SD	
Housing	Outer shield	Outer shield contacted via connector housing

Description and technical data of guide rail

Guide rail

The incremental scale and the reference marks or the absolute code band are integrated into the guide rail for the measuring system. This means that all adjustment work has already been completed at the factory. The user therefore does not incur any additional assembly costs for the measuring system. Furthermore, no additional installation space is required.

Use in conjunction with braking or clamping elements that act between the raceways in the area of the integrated scale, is not permitted.

Fastening the guide rail covering the fastening screws

The guide rail is secured with screws from above. The fastening bores can be covered with a cover strip (4) or caps (5).

Scale

The scales (1/2) are integrated in the guide rail. These consist of a steel mesh band. In the IMS-I, an incremental scale and reference marks are integrated into the guide rail; in the IMS-A, these reference marks are replaced by an absolute code band.

► Incremental scale (1):

On its own, the scale provides only ascending or descending numerical values (incremental signals) during scanning. The accuracy class determines the accuracy of the scale.

► Absolute code band (2):

The absolute code band provides absolute position information when the system is switched on.

► Reference marks:

On its own, the scale provides only ascending or descending signals (incremental signals) during scanning. It is not possible to detect the absolute position of the measuring system with this incremental measuring principle.

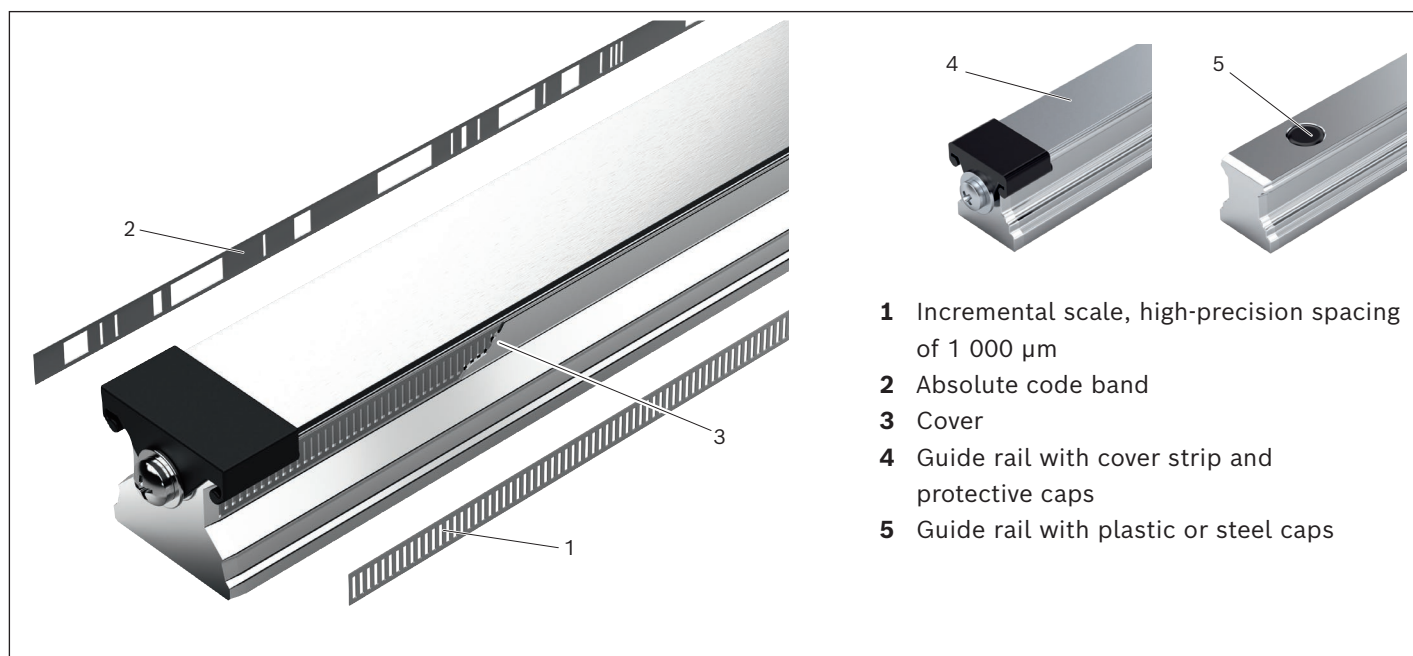
An additional reference is required to determine the absolute position of the runner block on the guide rail.

Alternatively, this can be done using:

- Individual reference marks
- External mechanical stop or switch

Protection for the scale

The cover (3) (stainless-steel band) protects the scale (1/2) from contamination. The stainless-steel band is joined to the rail by laser welding. As a result, protection class IP67 is achieved.

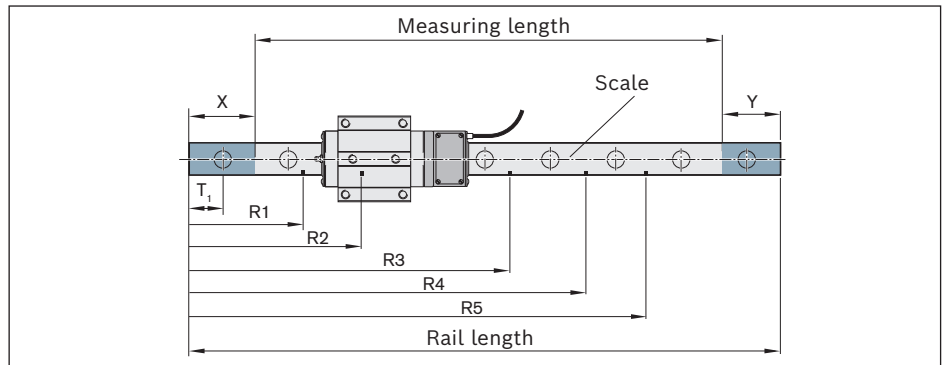


- 1 Incremental scale, high-precision spacing of 1 000 µm
- 2 Absolute code band
- 3 Cover
- 4 Guide rail with cover strip and protective caps
- 5 Guide rail with plastic or steel caps


Individual, absolute reference marks

An individual, absolute reference mark is a bore made in the guide rail on the side opposite the scale. The bore is closed by a brass pin and thus protected from ingress of dirt and from damage. Position determination requires that this reference mark be crossed.

Up to five individual reference marks ($R_1 \dots R_5$) can be made in the guide rail (specify positions when ordering). The minimum distance between 2 reference marks is 10 mm. See the chapter on ball guide rails for the permissible reference mark positions.



Modular, multi-part IMS-A guide rails

IMS-A guide rails offer the possibility of multi-part rail tracks via a modular design of the rail sections. As a modular design, any configuration up to a maximum of eight sections can be created. Modular IMS-A guide rails are available with and without measuring function. An important condition is that the scanner of an IMS-A runner block must remain on a rail with a measuring function and must not travel over the joints to another rail section. All sections of an IMS-A track must be marked with the push-on symbol  in order to avoid any risk of confusion with standard guide rails.

For further information and notes, see instruction R320103262.

Relevant order options for modular IMS-A guide rails are:

		Characteristic	Name
5	Cover	AP	For cover strip (must be ordered separately)
		AK	With plastic caps
7	Coding	AC	With absolute code band
		NC	Without measuring function
10	Modular version	ME	Modular end piece, joint at T2
		MM	Modular middle piece
		MA	Modular end piece, joint at T1
3	Accuracy class	S	Super precision (SP)

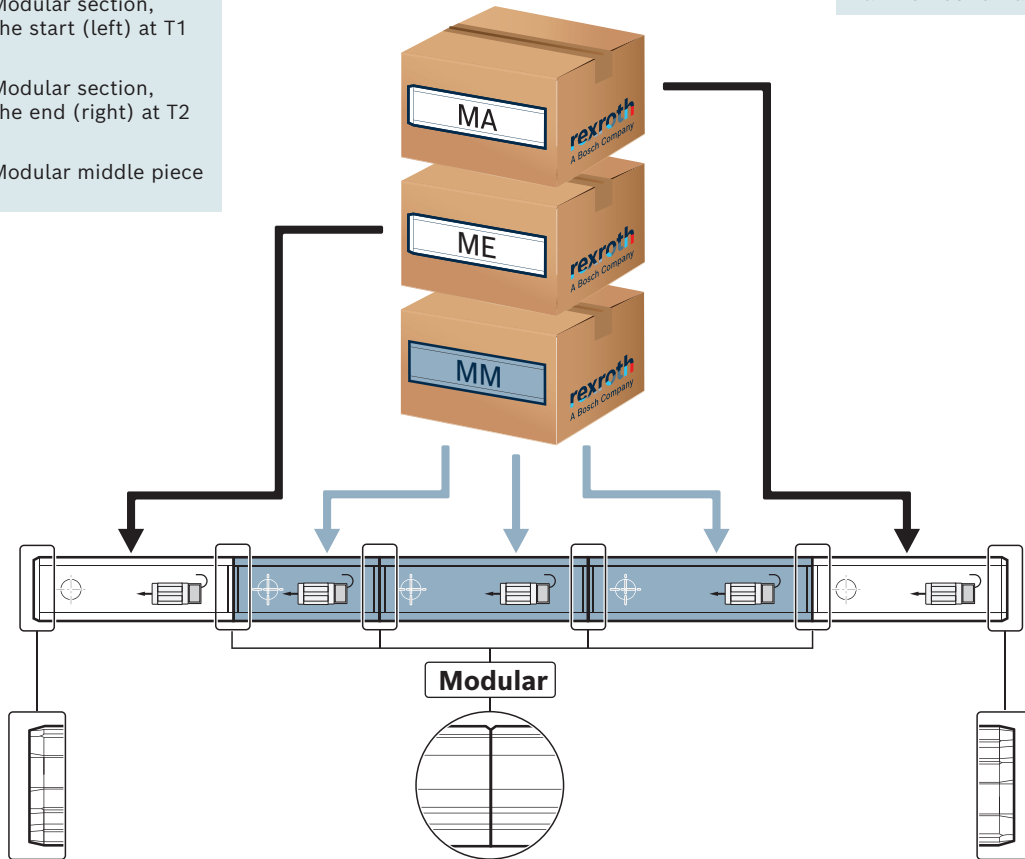
Modular IMS rails – Track can be flexibly combined from individual rails

MA = Modular section,
joint at the start (left) at T1

ME = Modular section,
joint at the end (right) at T2

MM = Modular middle piece

Max. number of rails ≤ 8



Description and technical data of the overall system

Accuracy of length measurement

The accuracy of the length measurement is essentially determined by:

- The spacing of the incremental scale
- The scanning and signal processing in the scanner

A distinction must be made between the position deviations over comparatively large travel ranges, e.g. over the entire rail length, and the position deviations within a pitch.

Position deviations at the same position

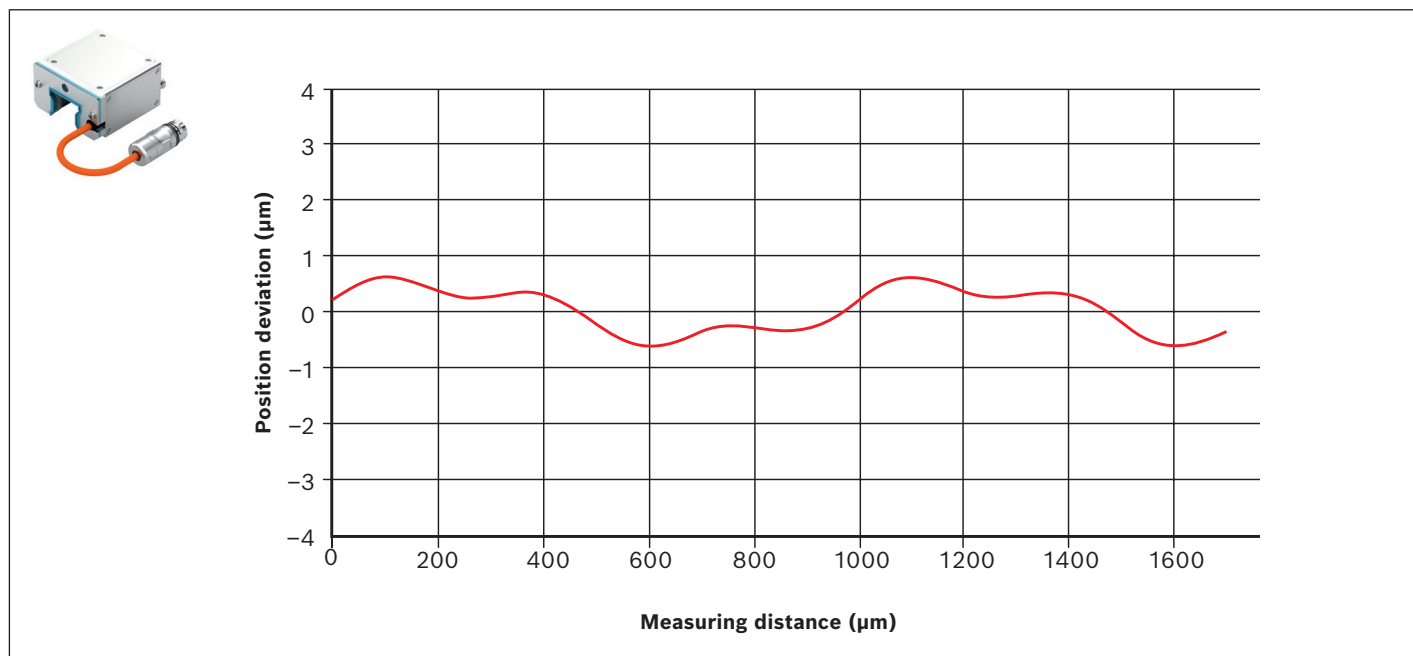
The repeatability is the maximum position deviation that can occur when repeatedly approaching the same position from both directions of travel. In any measurement point, this is less than $\pm 0.25 \mu\text{m}$.

Position deviations within a pitch

The position deviation values within a pitch of the scale ($1000 \mu\text{m}$) are determined by the signal period of the measuring device, as well as by the quality of the spacing and its scanning.

They are less than $\pm 0.75 \mu\text{m}$ ($\approx 0.75\%$ of the pitch) at any measurement point. It is of crucial importance for the accuracy of a positioning process as well as for the speed control in the case of slow, uniform movements of an axis and thus for surface finish and machining quality.

▼ Position deviation (μm) within a pitch

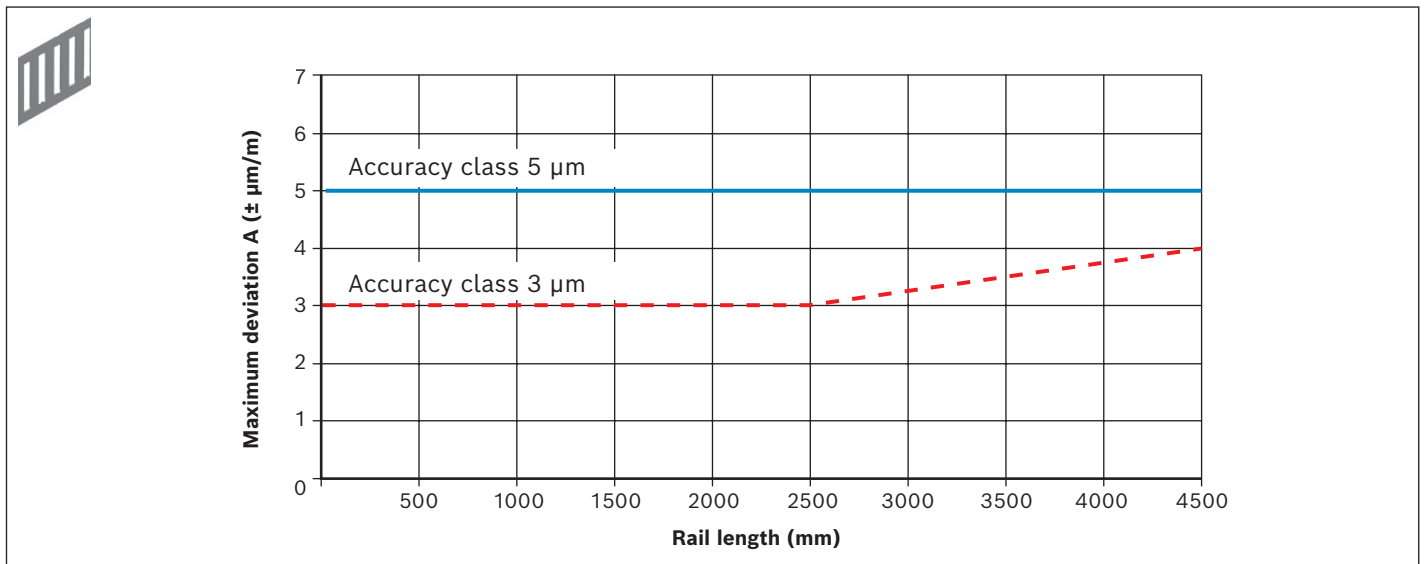


Position deviations across the measured travel

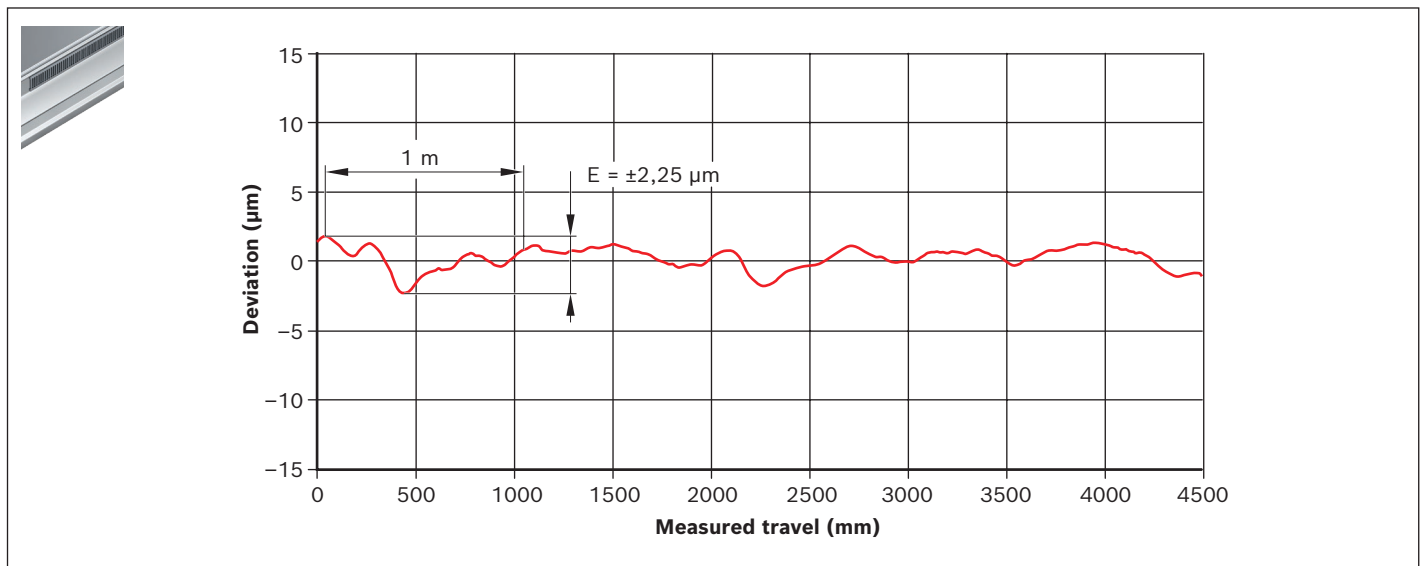
The precision of the scale in the guide rail is specified in accuracy classes defined as follows:
 The extreme values $\pm E$ of the measurement curves for any measured travel up to 1 m long are within the maximal deviation $\pm A$ (at 20 °C). The deviation A depends on the length of the guide rail (see fig.)
 The extreme values $\pm E$ are obtained during the final test and are given in the measurement report.

The linear lead deviation is documented in the measurement report supplied with the guide rail.
 The lead deviation can be compensated for together with the thermal longitudinal expansion (see section "Thermal behavior") in the drive control.

▼ **Accuracy classes of the scale**

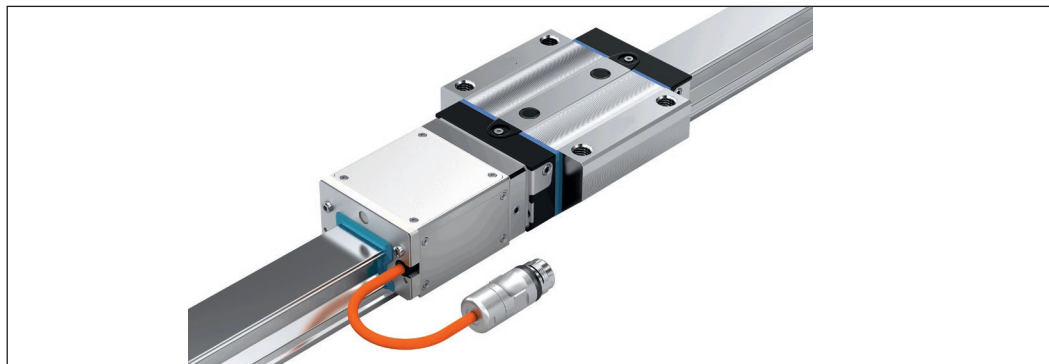


▼ **Example: Measurement curve of an IMS rail**



Description and technical data of the overall system

System accuracy (IMS-I and IMS-A)



Scale	Scanner	
	Interpolation accuracy (μm)	Repeatability (μm)
Accuracy class 3 μm	± 0.75	± 0.25
Accuracy class 5 μm	± 0.75	± 0.25

The precise accuracy of the scale is provided in the included measurement report. To determine the accuracy of the system, the accuracy classes of the scale, the interpolation accuracy, and repeatability are to be added together.

IMS-I				
Interface (signal)	I1 (1V _{SS})	I2 (TTL 1 μm)	I3 (TTL 5 μm)	I4 (TTL 10 μm)
TTL signal resolution (μm)	–	1	5	10
Dissolvability of the 1 V _{SS} / 40 μm signal (μm)	0.025	–	–	–

IMS-A								
Interface (signal)	HF	BI/B4	DQ/D4	FN	S1	S2	S3	S4
Resolution of the digital interface (μm)	1.25	0.025	0.025	0.025	10	1	0.25	0.125
Dissolvability of the 1 V _{SS} / 40 μm signal (μm)	0.025	–	–	–	0.025	0.025	0.025	0.025

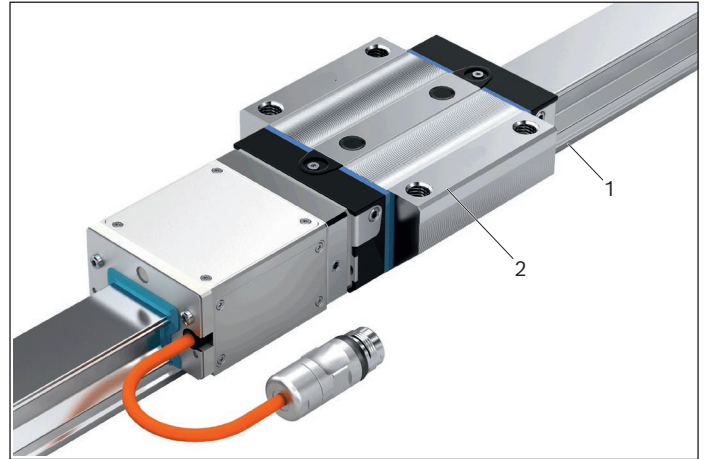
Technical data of the overall system

	Ball rail system	Roller rail system	Comment
Maximum travel speed	5 m/s	4 m/s	
Acceleration a_{max}	500 m/s ²	150 m/s ²	
Shock	500 m/s ² / 11 ms		According to EN 60068-2-27: 1993 / IEC 68-2-6:1995
Vibration	100 m/s ²		55-2000 Hz, acc. to EN 60068-2-6: 1996 / IEC 68-2-6:1995
Protection class	IP67		Tested with coolant/lubricant Curtis S90
EMC	Interference immunity: EN 61326-1: 2006 Emitted interference: EN 61000-6-2, Class B		CE-marking
RoHS compliant	yes		
UL compliant	yes		

Thermal behavior

The thermal behavior of the IMS is essentially determined by two components:

- 1 IMS guide rail -> Profiled rail with integrated steel scale.
- 2 IMS runner block -> Runner block with attached scanner and sensors.



IMS guide rail (longitudinal expansion coefficient):

Profiled rail: $\alpha_{\text{therm}} = 11 \times 10^{-6} \text{K}^{-1}$

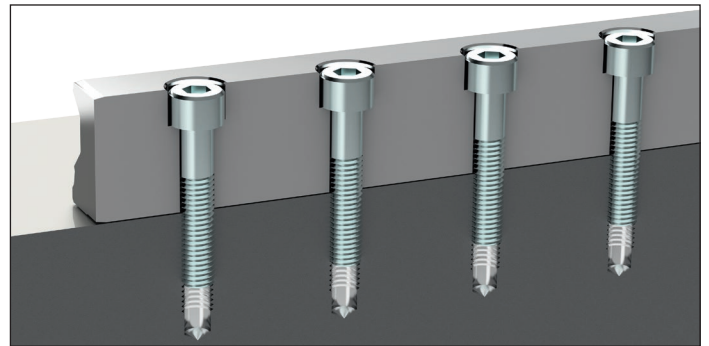
Scale: $\alpha_{\text{therm}} = 11 \times 10^{-6} \text{K}^{-1}$



Influence of the substructure:

Assumption: Bolting of the guide rail on an ideally rigid mounting base.

The mounting base determines the longitudinal expansion of the IMS rail: $\alpha_{\text{therm}} = \alpha_{\text{therm}} - \text{mounting base}$



Lubrication

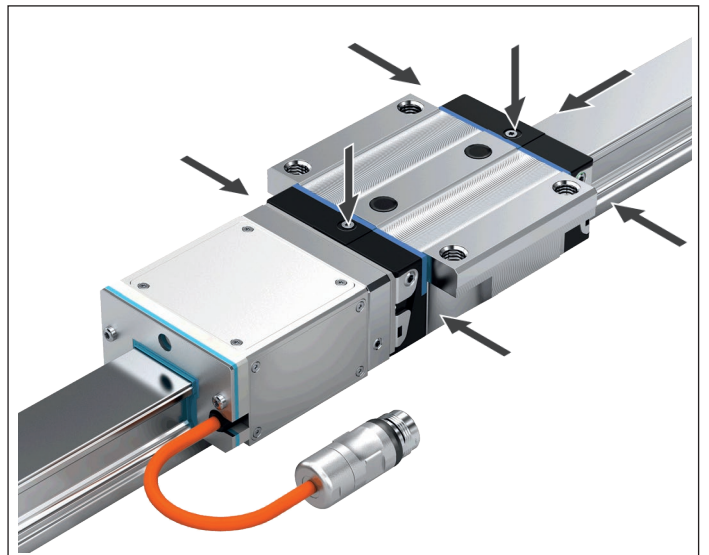
Rexroth ball rail systems are delivered with anti-corrosion agent and initial lubrication.

Rexroth Roller Rail Systems are delivered filled with an anti-corrosion agent (sufficient for mounting and commissioning). Immediately after mounting the runner blocks (before commissioning), ensure adequate initial lubrication (basic lubrication) with a suitable lubricant. All runner blocks are designed for both grease lubrication and for oil lubrication.

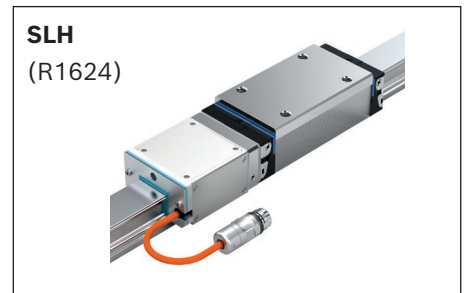
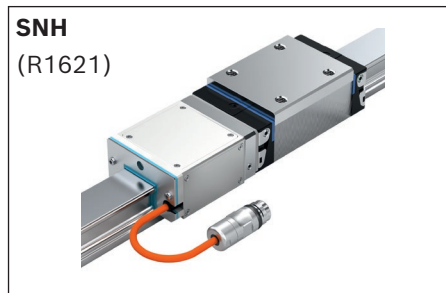
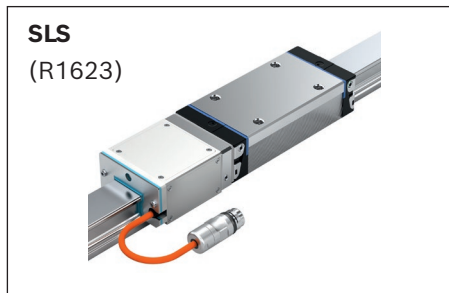
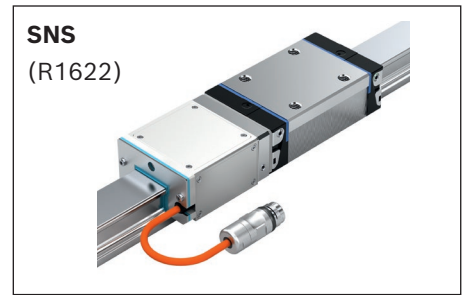
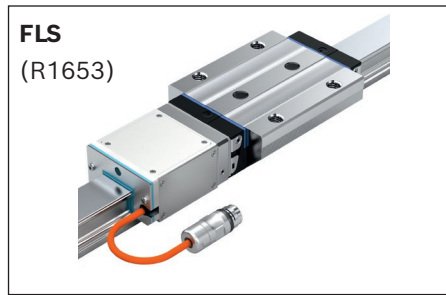
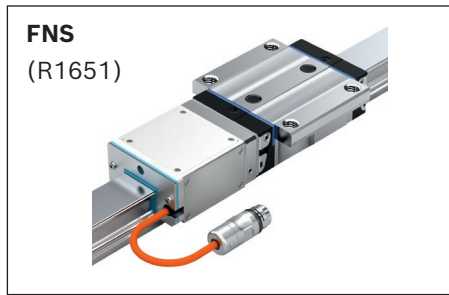
The ball and roller rail systems with measuring system cannot be lubricated via the scanner.

Lubrication is easily possible via the free lube fittings, which are marked with arrows.

For more information on maintenance and lubrication, see the respective chapters in the ball/roller rail systems catalogs.



Product overview and type designations for ball runner blocks

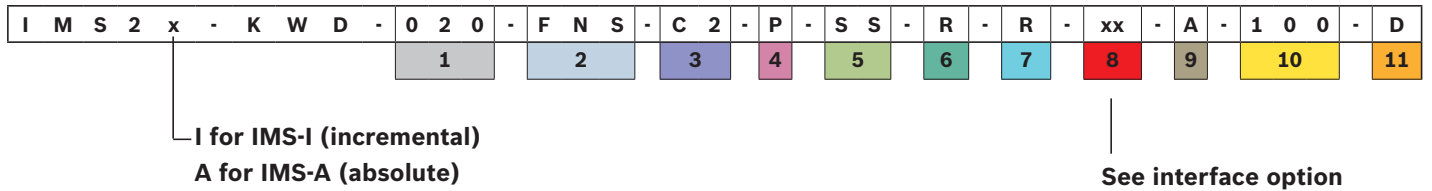


Available versions

Ball runner block	Ball chain	Seal	Size																								
			20					25					30					35					45				
			P		S			P		S			P		S			P		S			P		S		
			C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3
FNS	0 / R	SS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	0 / R	LS	✓		✓				✓		✓				✓		✓										
	0 / R	DS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FLS	0 / R	SS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	0 / R	LS	✓		✓				✓		✓				✓		✓										
	0 / R	DS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
SNS	0 / R	SS	✓	✓				✓	✓					✓	✓								✓	✓			
	0 / R	LS	✓					✓						✓													
	0 / R	DS	✓	✓				✓	✓					✓	✓								✓	✓			
SLS	0 / R	SS	✓	✓				✓	✓					✓	✓								✓	✓			
	0 / R	LS	✓					✓						✓													
	0 / R	DS	✓	✓				✓	✓					✓	✓								✓	✓			
SNH	0 / R	SS						✓	✓					✓	✓								✓	✓			
	0 / R	LS						✓						✓													
	0 / R	DS						✓	✓					✓	✓								✓	✓			
SLH	0 / R	SS						✓	✓					✓	✓								✓	✓			
	0 / R	LS						✓						✓													
	0 / R	DS						✓	✓					✓	✓								✓	✓			

✓ = available versions

Type designation for ball runner block with IMS (example)



1 Size	
Characteristic	Designation
020	Size 20
025	Size 25
030	Size 30
035	Size 35
045	Size 45

2 Format	
Characteristic	Designation
FNS	Flanged, normal, standard height
FLS	Flanged, long, standard height
SNS	Slimline, normal, standard height
SLS	Slimline, long, standard height
SNH	Slimline, normal, high
SLH	Slimline, long, high

3 Preload class	
Characteristic	Designation
C1	Preload class C1
C2	Preload class C2
C3	Preload class C3

4 Accuracy class	
Characteristic	Designation
P	Precision
S	Super precision (SP)

5 Seal	
Characteristic	Designation
SS	Standard seal
LS	Low-friction seal
DS	Double-lip seal

6 Ball chain	
Characteristic	Designation
0	Without ball chain
R	With ball chain

7 Scanner mounting side	
Characteristic	Designation
R	Right
L	Left

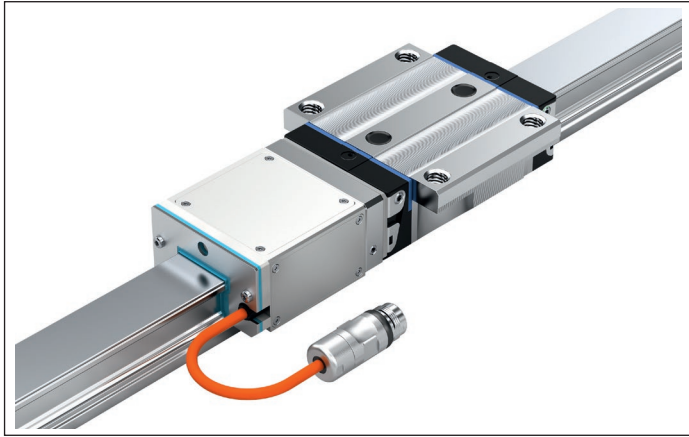
8 Interface			
IMS-I		IMS-A	
Characteristic	Designation	Characteristic	Designation
I 1	1 V _{SS} 40 μm	HF	HIPERFACE®
I 2	TTL 1 μm	BI	BiSS-C
I 3	TTL 5 μm	B4	BiSS-C, +/- 16g
I 4	TTL 10 μm	DQ	DRIVE-CLiQ
		D4	DRIVE-CLiQ, +/- 16g
		FN	FANUC αi
		S1	SSI 10 μm
		S2	SSI 1 μm
		S3	SSI 0.25 μm
		S4	SSI 0.125 μm

9 Connector type	
Characteristic	Designation
A	RGS 1722
B	RGS 1714
C	M12 / 8-pin (DRIVE-CLiQ only)
D	M23 / 17-pin (FANUC only)
H	M12 / 8-pin (BiSS-C only)

10 Cable length	
Characteristic	Designation
100	1.0 meters

11 Documentation	
Characteristic	Designation
D	Standard documentation

Ball runner block FNS



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Pre-lubricated (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Ball runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

FNS	Ball chain	Seal	Size																								
			20					25					30					35					45				
			P		S			P		S			P		S			P		S			P		S		
C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3			
	0/R	SS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	0/R	LS	✓		✓			✓				✓				✓											
	0/R	DS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

✓ = available versions

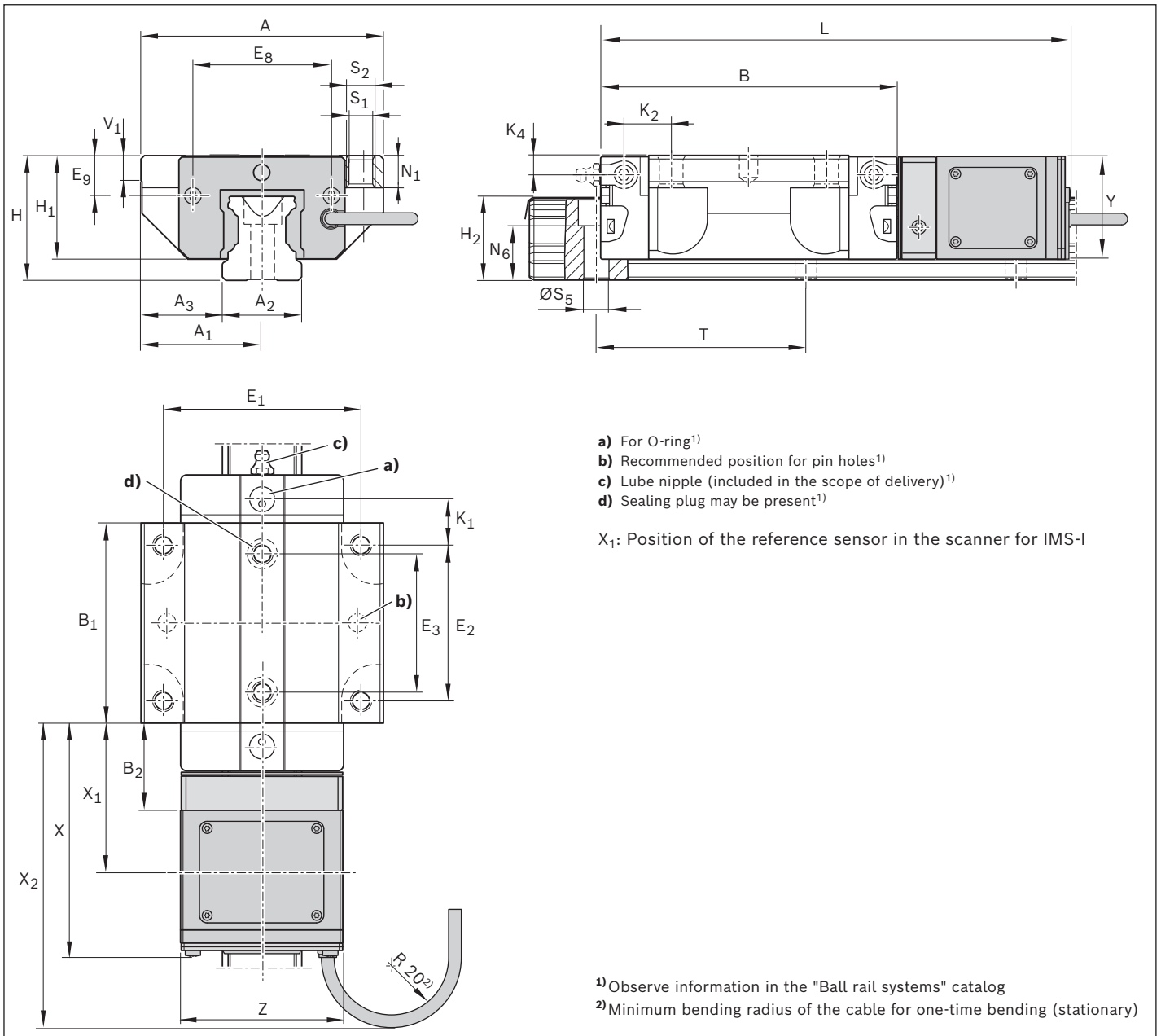
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₃	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₄
20	63	31.5	20	21.5	75.0	49.6	23.45	53	40	35	32.5	7.30	30	25.35	20.75	20.55	11.80	11.8	3.35
25	70	35.0	23	23.5	86.2	57.8	24.95	57	45	40	38.3	11.50	36	29.90	24.45	24.25	12.45	13.6	5.50
30	90	45.0	28	31.0	97.7	67.4	27.40	72	52	44	48.4	14.60	42	35.35	28.55	28.35	14.00	15.7	6.05
35	100	50.0	34	33.0	110.5	77.0	29.00	82	62	52	58.0	17.35	48	40.40	32.15	31.85	14.50	16.0	6.90
45	120	60.0	45	37.5	137.6	97.0	32.55	100	80	60	69.8	20.90	60	50.30	40.15	39.85	17.30	19.3	8.20

Size	L	N ₁	N ₆ ^{±0.5}	S ₁	S ₂	∅S ₅	T	V ₁	X	X ₁	X ₂	Y	Z
20	155.9	7.7	13.2	5.3	M6	6	60	6.0	93.10	53.45	118.10	24.93	43
25	167.1	9.3	15.2	6.7	M8	7	60	7.5	94.60	54.95	119.60	29.43	47
30	180.6	11.0	17.0	8.5	M10	9	80	7.0	97.55	57.40	122.55	34.50	59
35	193.7	12.0	20.5	8.5	M10	9	80	8.0	99.45	59.00	124.45	39.50	69
45	222.0	15.0	23.5	10.4	M12	14	105	10.0	104.20	62.55	129.20	49.50	85

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

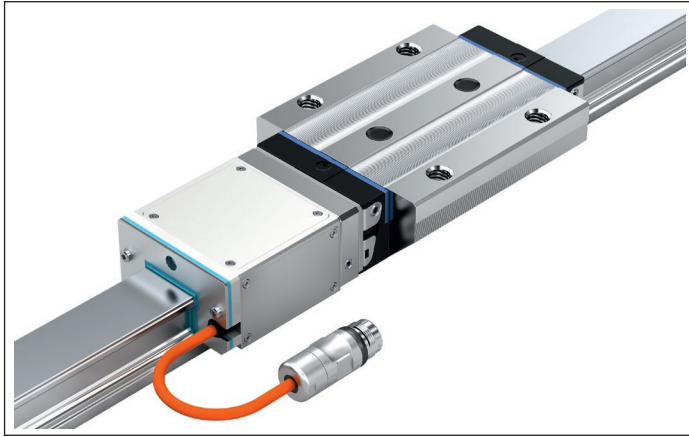


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class		
	m	C1/C2/C3	C1	C2	C3
20	0.67	9 400	42	53	65
25	0.91	11 400	66	73	90
30	1.42	15 850	106	117	145
35	2.00	20 950	125	178	220
45	3.58	34 050	216	360	445

³⁾ Values for ball runner blocks without ball chain with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the "Ball rail systems" catalog must be used. Values for ball runner blocks with ball chain on request.

Ball runner block FLS



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Pre-lubricated (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Ball runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

FLS	Ball chain	Seal	Size																								
			20					25					30					35					45				
			P		S			P		S			P		S			P		S			P		S		
C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3	C1	C2	C1	C2	C3			
0/R	SS		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
0/R	LS		✓		✓			✓		✓				✓		✓				✓		✓					
0/R	DS		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

✓ = available versions

Dimensions (mm)

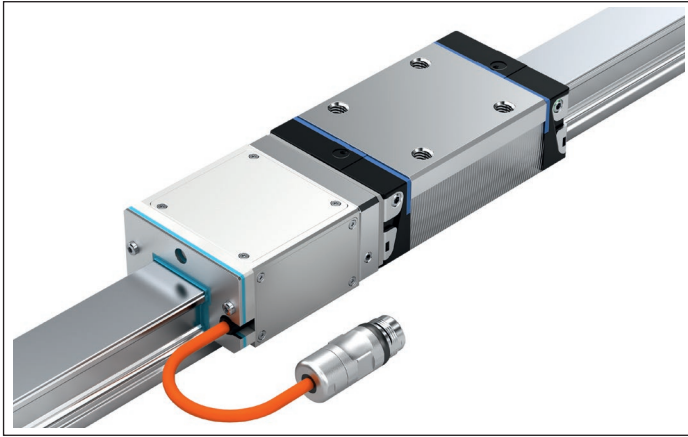
Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₃	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₄
20	63	31.5	20	21.5	91.0	65.6	23.45	53	40	35	32.5	7.30	30	25.35	20.75	20.55	19.80	19.80	3.35
25	70	35.0	23	23.5	107.9	79.5	24.95	57	45	40	38.3	11.50	36	29.90	24.45	24.25	23.30	24.45	5.50
30	90	45.0	28	31.0	119.7	89.4	27.40	72	52	44	48.4	14.60	42	35.35	28.55	28.35	25.00	26.70	6.05
35	100	50.0	34	33.0	139.0	105.5	29.00	82	62	52	58.0	17.35	48	40.40	32.15	31.85	28.75	30.25	6.90
45	120	60.0	45	37.5	174.1	133.5	32.55	100	80	60	69.8	20.90	60	50.30	40.15	39.85	35.50	37.50	8.20

Size	L	N1	N ₆ ^{+0.5}	S ₁	S ₂	∅S ₅	T	V ₁	X	X ₁	X ₂	Y	Z
20	171.9	7.7	13.2	5.3	M6	6	60	6.0	93.10	53.45	118.10	24.93	43
25	188.8	9.3	15.2	6.7	M8	7	60	7.5	94.60	54.95	119.60	29.43	47
30	202.6	11.0	17.0	8.5	M10	9	80	7.0	97.55	57.40	122.55	34.50	59
35	222.2	12.0	20.5	8.5	M10	9	80	8.0	99.45	59.00	124.45	39.50	69
45	258.5	15.0	23.5	10.4	M12	14	105	10.0	104.20	62.55	129.20	49.50	85

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

Ball runner block SNS



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Pre-lubricated (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Ball runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SNS	Ball chain	Seal	Size															
			20		25		30		35		45							
			P	C1	C2	P	C1	C2	P	C1	C2	P	C1	C2				
	0/R	SS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	0/R	LS	✓			✓			✓			✓						
	0/R	DS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

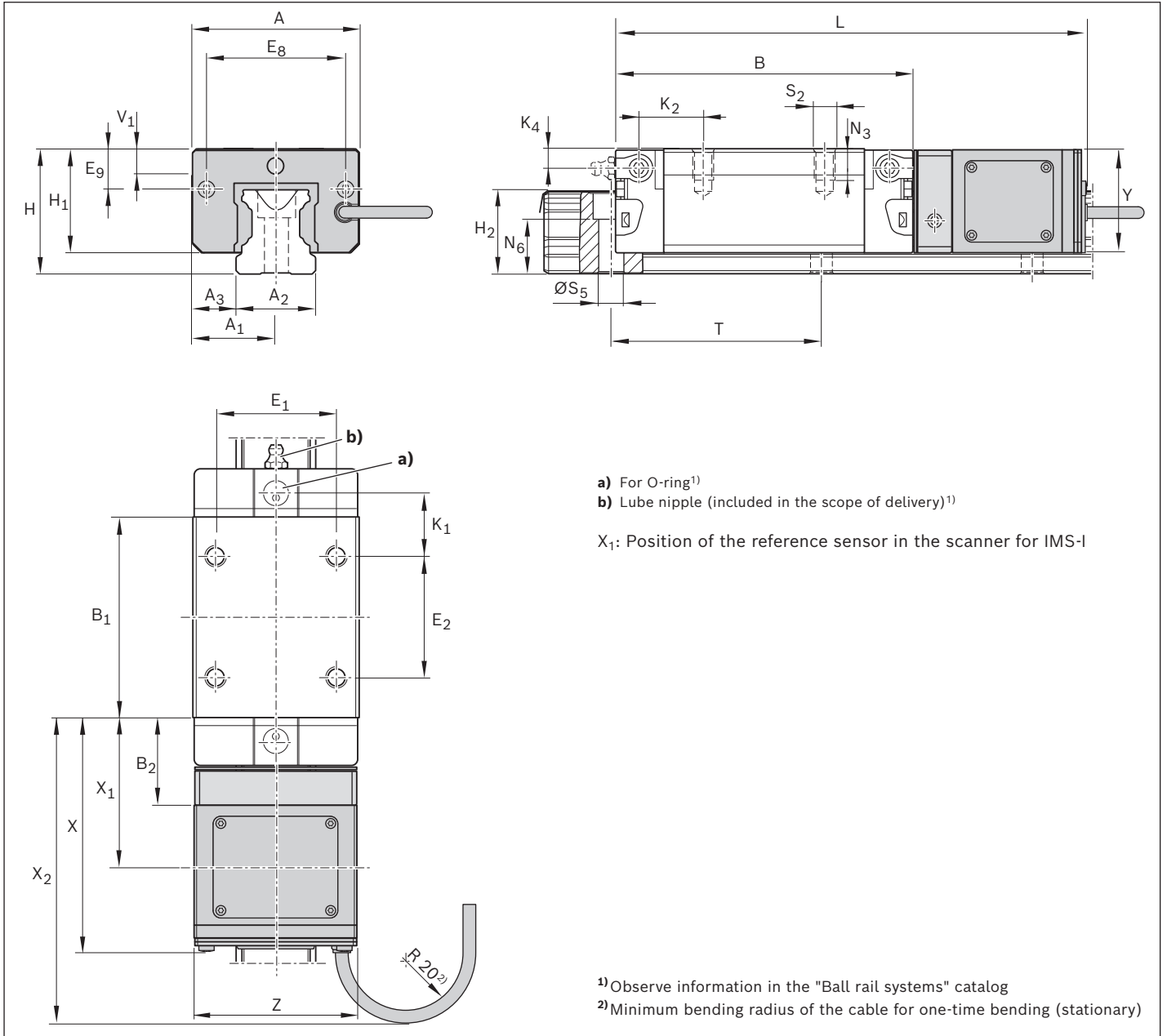
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₄
20	44	22	20	12.0	75.0	49.6	23.45	32	36	32.5	7.30	30	25.35	20.75	20.55	13.80	13.80	3.35
25	48	24	23	12.5	86.2	57.8	24.95	35	35	38.3	11.50	36	29.90	24.45	24.25	17.45	18.60	5.50
30	60	30	28	16.0	97.7	67.4	27.40	40	40	48.4	14.60	42	35.35	28.55	28.35	20.00	21.70	6.05
35	70	35	34	18.0	110.5	77.0	29.00	50	50	58.0	17.35	48	40.40	32.15	31.85	20.50	22.00	6.90
45	86	43	45	20.5	137.6	97.0	32.55	60	60	69.8	20.90	60	50.30	40.15	39.85	27.30	29.30	8.20



Size	L	N ₃	N ₆ ^{±0.5}	S ₂	∅S ₅	T	V ₁	X	X ₁	X ₂	Y	Z
20	155.9	7.5	13.2	M5	6	60	6.0	93.10	53.45	118.10	24.93	43
25	167.1	9.0	15.2	M6	7	60	7.5	94.60	54.95	119.60	29.43	47
30	180.6	12.0	17.0	M8	9	80	7.0	97.55	57.40	122.55	34.50	59
35	193.7	13.0	20.5	M8	9	80	8.0	99.45	59.00	124.45	39.50	69
45	222.0	18.0	23.5	M10	14	105	10.0	104.20	62.55	129.20	49.50	85

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

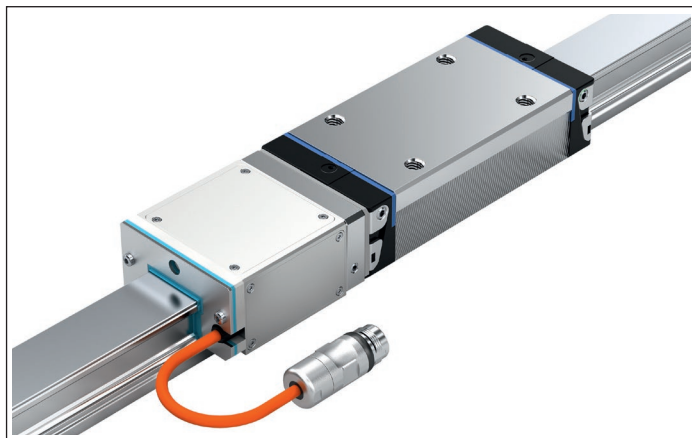


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class		
					
	m		C1/C2	C1	C2
20	0.57		9 400	42	53
25	0.76		11 400	51	73
30	1.17		15 850	94	117
35	1.65		20 950	125	178
45	2.98		34 050	180	288

³⁾ Values for ball runner blocks without ball chain with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the "Ball rail systems" catalog must be used. Values for ball runner blocks with ball chain on request.

Ball runner block SLS



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Pre-lubricated (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Ball runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SLS	Ball chain	Seal	Size															
			20		25		30		35		45							
			P	C1	C2	P	C1	C2	P	C1	C2	P	C1	C2				
	0/R	SS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	0/R	LS	✓		✓		✓		✓		✓		✓		✓		✓	
	0/R	DS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

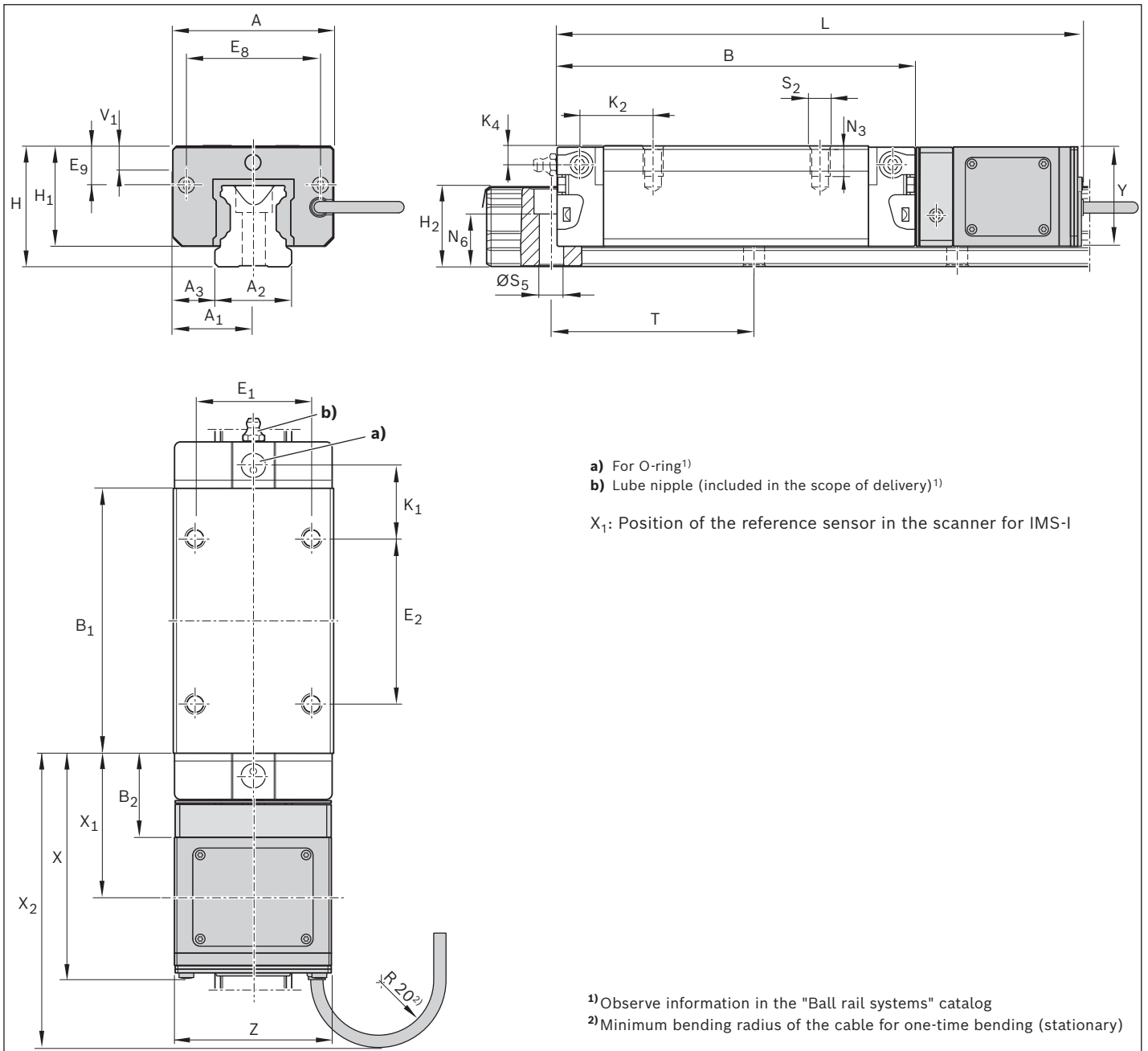
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₄
20	44	22	20	12.0	91.0	65.6	23.45	32	50	32.5	7.30	30	25.35	20.75	20.55	14.80	14.80	3.35
25	48	24	23	12.5	107.9	79.5	24.95	35	50	38.3	11.50	36	29.90	24.45	24.25	20.80	21.95	5.50
30	60	30	28	16.0	119.7	89.4	27.40	40	60	48.4	14.60	42	35.35	28.55	28.35	21.00	22.70	6.05
35	70	35	34	18.0	139.0	105.5	29.00	50	72	58.0	17.35	48	40.40	32.15	31.85	23.75	25.25	6.90
45	86	43	45	20.5	174.1	133.5	32.55	60	80	69.8	20.90	60	50.30	40.15	39.85	35.50	37.50	8.20

Size	L	N ₃	N ₆ ^{±0.5}	S ₂	ØS ₅	T	V ₁	X	X ₁	X ₂	Y	Z
20	171.9	7.5	13.2	M5	6	60	6.0	93.10	53.45	118.10	24.93	43
25	188.8	9.0	15.2	M6	7	60	7.5	94.60	54.95	119.60	29.43	47
30	202.6	12.0	17.0	M8	9	80	7.0	97.55	57.40	122.55	34.50	59
35	222.2	13.0	20.5	M8	9	80	8.0	99.45	59.00	124.45	39.50	69
45	258.5	18.0	23.5	M10	14	105	10.0	104.20	62.55	129.20	49.50	85

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

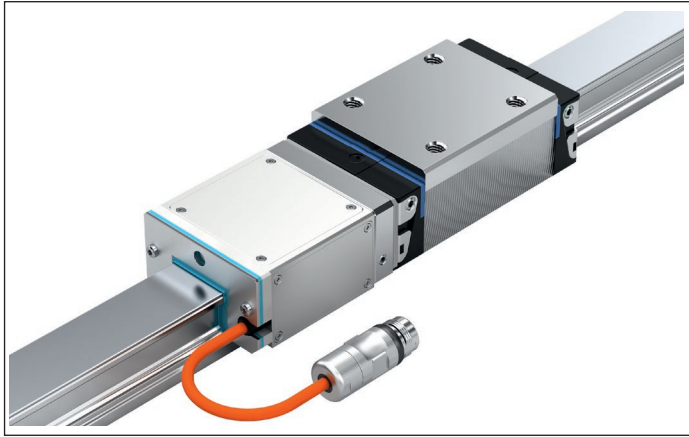


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class		
			$M_{Z \max}$ C1	C2	
	m		C1/C2	C1	C2
20	0.67		12 200	113	126
25	0.91		15 200	174	174
30	1.42		20 000	279	279
35	2.10		27 800	437	486
45	3.78		45 200	692	988

³⁾ Values for ball runner blocks without ball chain with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the "Ball rail systems" catalog must be used. Values for ball runner blocks with ball chain on request.

Ball runner block SNH



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Pre-lubricated (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Ball runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SNH	Ball chain	Seal	Size																		
			25		30		35		45												
			P	C1	C2	P	C1	C2	P	C1	C2										
	0/R	SS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	0/R	LS	✓			✓			✓												
	0/R	DS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

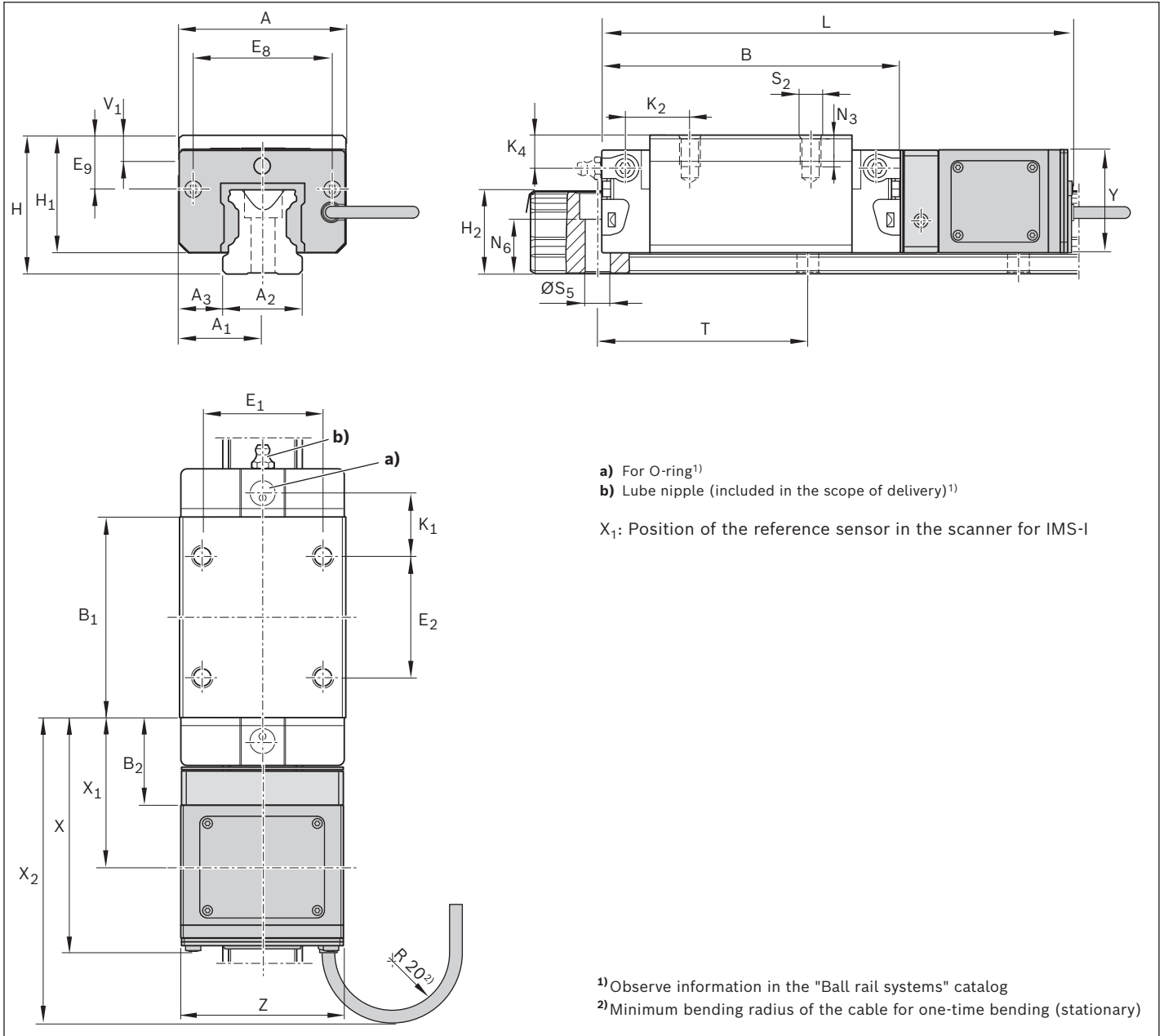
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₃	K ₄
25	48	24	23	12.5	86.2	57.8	24.95	35	35	38.3	15.50	40	33.90	24.45	24.25	17.45	18.6	9.50	9.50
30	60	30	28	16.0	97.7	67.4	27.40	40	40	48.4	17.60	45	38.35	28.55	28.35	20.00	21.7	9.05	9.05
35	70	35	34	18.0	110.5	77.0	29.00	50	50	58.0	24.35	55	47.40	32.15	31.85	20.50	22.0	13.90	13.90
45	86	43	45	20.5	137.6	97.0	32.55	60	60	69.8	30.90	70	60.30	40.15	39.85	27.30	29.3	18.20	18.20



Size	L	N ₃	N ₆ ^{±0.5}	S ₂	∅S ₅	T	V ₁	X	X ₁	X ₂	Y	Z
25	167.1	9.0	15.2	M6	7	60	7.5	94.60	54.95	119.60	29.43	47
30	180.6	12.0	17.0	M8	9	80	7.0	97.55	57.40	122.55	34.50	59
35	193.7	13.0	20.5	M8	9	80	8.0	99.45	59.00	124.45	39.50	69
45	222.0	18.0	23.5	M10	14	105	10.0	104.20	62.55	129.20	49.50	85

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

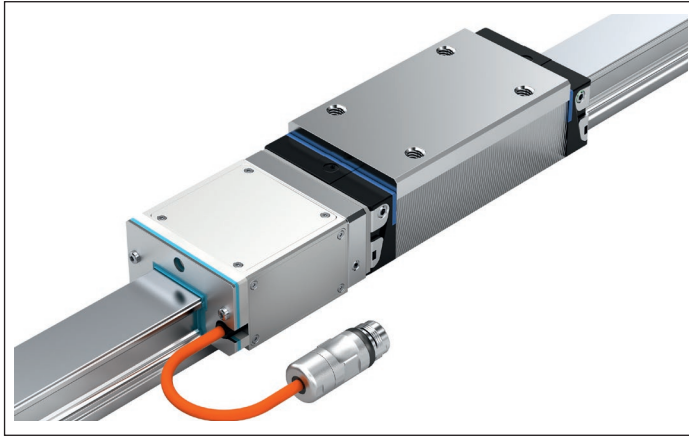


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class	
			 M_Z max 	
	m	C1/C2	C1	C2
25	0.86	11 400	66	73
30	1.27	15 850	106	117
35	1.95	20 950	143	178
45	3.58	34 050	324	252

³⁾ Values for ball runner blocks without ball chain with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the "Ball rail systems" catalog must be used. Values for ball runner blocks with ball chain on request.

Ball runner block SLH



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Pre-lubricated (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Ball runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SLH	Ball chain	Seal	Size							
			25		30		35		45	
			P	C1	P	C2	P	C2	P	C2
	0/R	SS	✓	✓	✓	✓	✓	✓	✓	✓
	0/R	LS	✓		✓		✓			
	0/R	DS	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

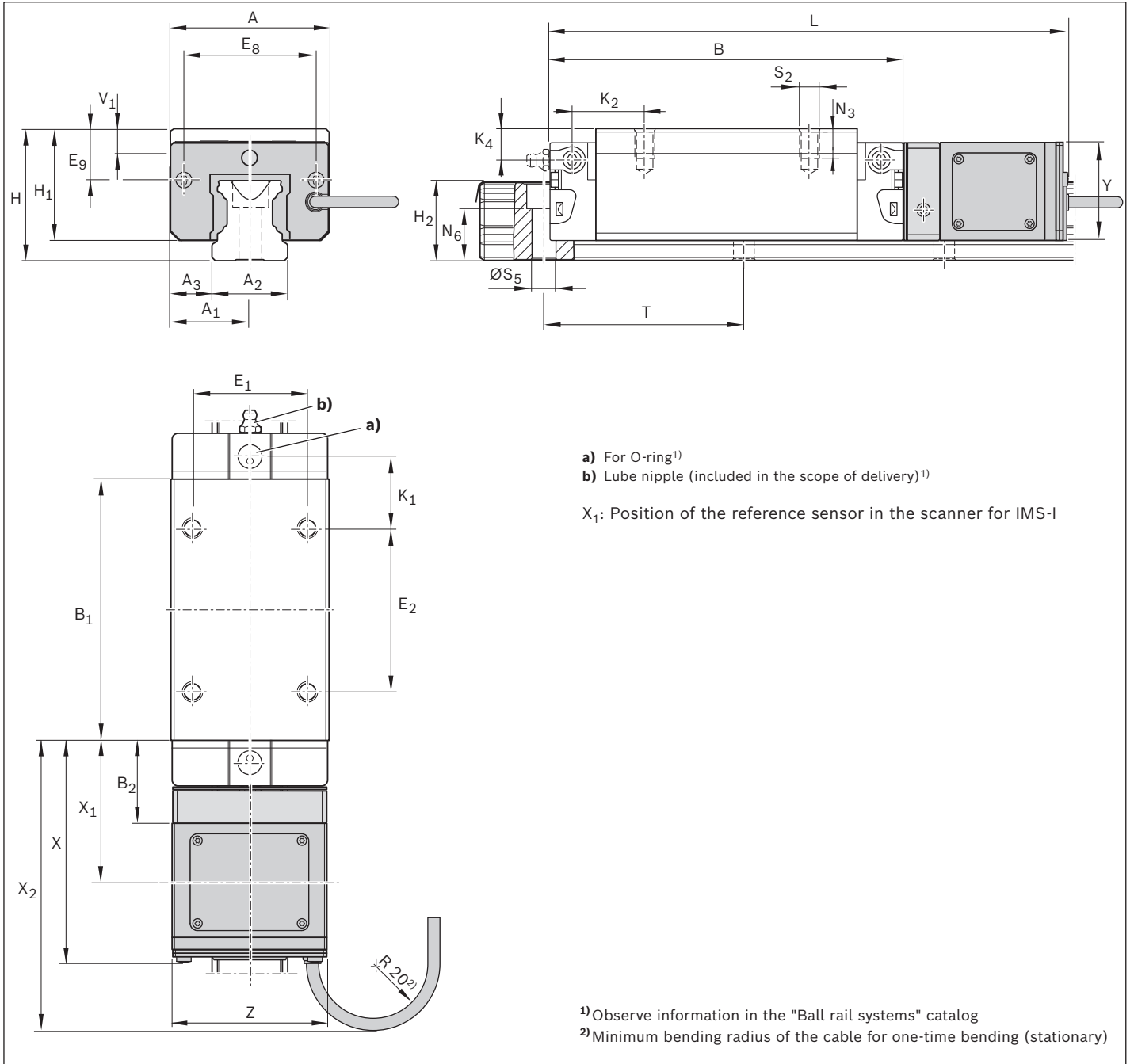
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁	K ₂	K ₄
25	48	24	23	12.5	107.9	79.5	24.95	35	50	38.3	15.50	40	33.90	24.45	24.25	20.80	21.95	9.50
30	60	30	28	16.0	119.7	89.4	27.40	40	60	48.4	17.60	45	38.35	28.55	28.35	21.00	22.70	9.05
35	70	35	34	18.0	139.0	105.5	29.00	50	72	58.0	24.35	55	47.40	32.15	31.85	23.75	25.25	13.90
45	86	43	45	20.5	174.1	133.5	32.55	60	80	69.8	30.90	70	60.30	40.15	39.85	35.50	37.50	18.20

Size	L	N ₃	N ₆ ^{±0.5}	S ₂	∅S ₅	T	V ₁	X	X ₁	X ₂	Y	Z
25	188.8	9	15.2	M6	7	60	7.5	94.60	54.95	119.60	29.43	47
30	202.6	12	17.0	M8	9	80	7.0	97.55	57.40	122.55	34.50	59
35	222.2	13	20.5	M8	9	80	8.0	99.45	59.00	124.45	39.50	69
45	258.5	18	23.5	M10	14	105	10.0	104.20	62.55	129.20	49.50	85

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip



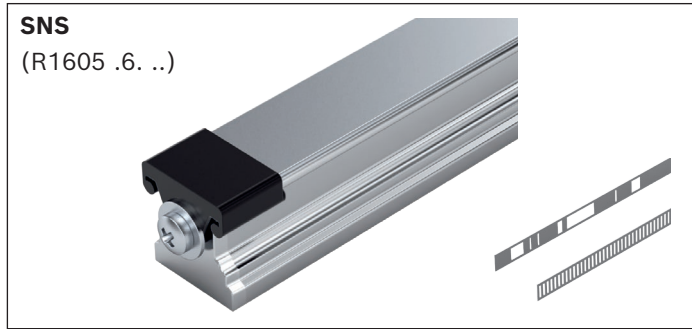
Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class	
			C1	C2
	m		C1/C2	C1 C2
25	1.06		15 200	174 174
30	1.52		20 000	279 279
35	2.50		27 800	486 486
45	4.68		45 200	988 988

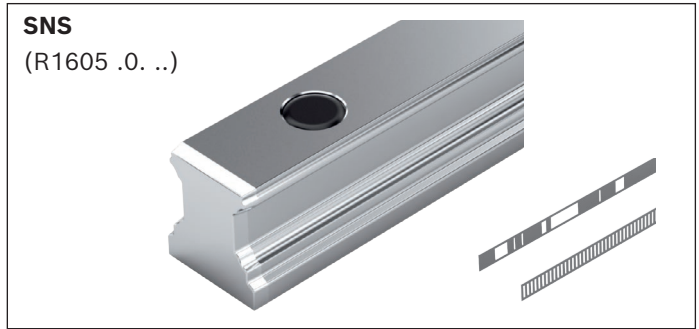
³⁾Values for ball runner blocks without ball chain with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the "Ball rail systems" catalog must be used. Values for ball runner blocks with ball chain on request.

Product overview and type designations for ball guide rails

Ball guide rails with cover strip and protective caps and integrated scale



Ball guide rails with plastic caps¹⁾ and integrated scale



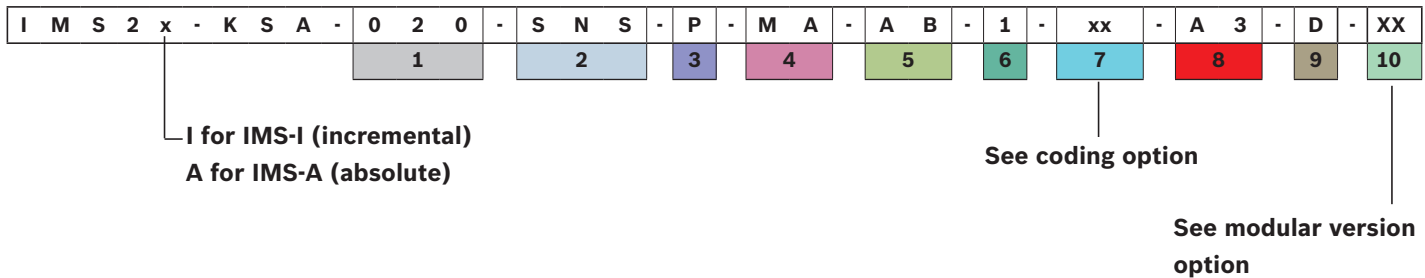
¹⁾only for applications without exposure to dirt and dust

Available versions

Ball guide rails SNS	Size									
	20		25		30		35		45	
	P	S	P	S	P	S	P	S	P	S
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

Type designation for ball guide rail with scale (example)



1 Size	Characteristic	Designation
	020	Size 20
	025	Size 25
	030	Size 30
	035	Size 35
	045	Size 45

2 Format	Characteristic	Designation
	SNS	Slimline, normal, standard height

3 Accuracy class	Characteristic	Designation
	P	Precision
	S	Super precision (SP)

4 Fastening	Characteristic	Designation
	MA	Bolting from above

5 Cover	
Characteristic	Designation
AB	With cover strip and protective caps
AK	With plastic caps
AP	For cover strip with protective caps (only for modular version)

7 Coding	
Characteristic	Designation
IMS-I	
R0	Without referencing
R1	With 1 reference mark
R2	With 2 reference marks
R3	With 3 reference marks
R4	With 4 reference marks
R5	With 5 reference marks
IMS-A	
AC	With absolute code band
NC	Without measuring function (only for modular version)

6 Number of sections	
Characteristic	Designation
1	Number of sections

8 Scale accuracy class	
Characteristic	Designation
A3	3 µm
A5	5 µm
00	Without measuring function (only for modular version)

9 Documentation	
Characteristic	Designation
D	Standard documentation

10 Modular version	
Characteristic	Designation
ME	Modular end piece, joint at T2
MM	Modular middle piece
MA	Modular end piece, joint at T1

IMS-I

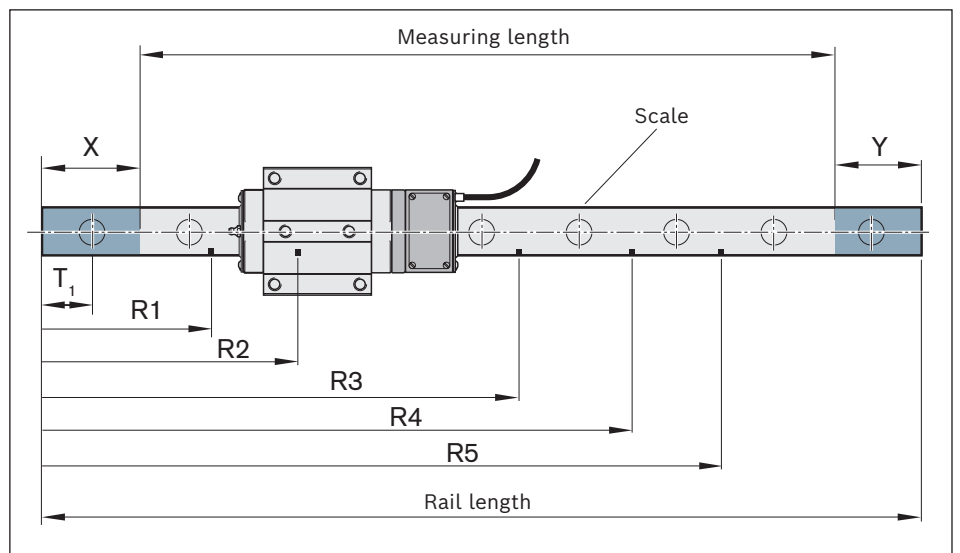
Permissible positions of individual reference marks (7 coding, characteristic: R1 ... R5)

Due to mechanical limit conditions, reference marks are to be selected according to the following drawing. Reference marks cannot be selected in the X and Y areas. This means that possible positions for R1 ... R5 must be defined such that they are >X and >Y. Specification of the positions in 1 mm increments.

Example: Size 20: R1 = 155 mm, R_n = rail length - 63 mm, with cover strip and protective caps (AB).

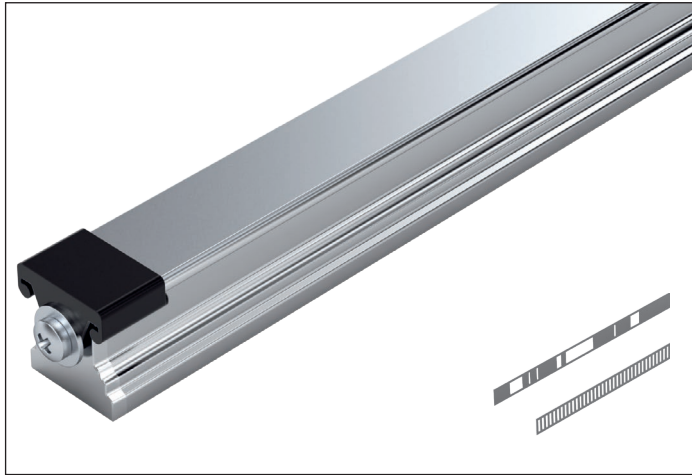
A minimum distance of 10 mm must be maintained between individual reference marks.

Size	Dimensions (mm)			
	Characteristic AB (R1605 .6. ..)		Characteristic AK (R1605 .0. ..)	
	X	Y	X	Y
20	154	62	134	42
25	170	62	150	42
30	184	62	164	42
35	203	62	183	42
45	238	62	218	42



R1 ... R5 reference mark positions

Ball guide rails SNS with cover strips and protective caps



- ▶ For bolting from above, with cover strip made of corrosion-resistant spring steel per DIN EN 10088 and screw-down plastic protective caps (with end-face thread bore hole)
- ▶ With integrated scale

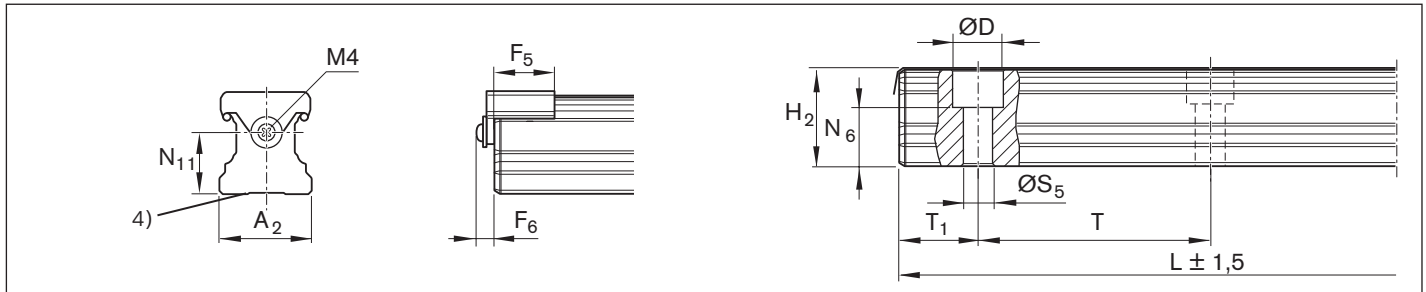
Notes

- ▶ Secure the cover strip!
- ▶ As an alternative, the cover strip can be secured with screws and washers.
- ▶ Protective caps with screws and washers are included in the scope of delivery.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SNS	Size										
	20		25		30		35		45		
	P	S	P	S	P	S	P	S	P	S	
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions



Dimensions (mm)

Size	A ₂	D	F ₅	F ₆	H ₂ ¹⁾	H ₂ ⁵⁾	L _{min}	L _{max}	N ₆ ^{±0.5}	N ₁₁	ØS ₅	T	T _{1 min} ²⁾	T ₁₅ ³⁾	T _{1 max}	Mass m (kg/m)
20	20	9.4	14.0	6.5	20.75	20.55	260	4 500	13.2	13	6	60	13	28.0	50	2.4
25	23	11.0	15.2	6.5	24.45	24.25	280	4 500	15.2	15	7	60	13	28.0	50	3.2
30	28	15.0	15.2	7.0	28.55	28.35	290	4 500	17.0	18	9	80	16	38.0	68	5.0
35	34	15.0	18.0	7.0	32.15	31.85	310	4 500	20.5	22	9	80	16	38.0	68	6.8
45	45	20.0	20.0	7.0	40.15	39.85	350	4 500	23.5	30	14	105	18	50.5	89	10.5

¹⁾ Dimension H₂ with cover strip

Size 20 - 30 with cover strip 0.2 mm

Size 35 - 45 with cover strip 0.3 mm

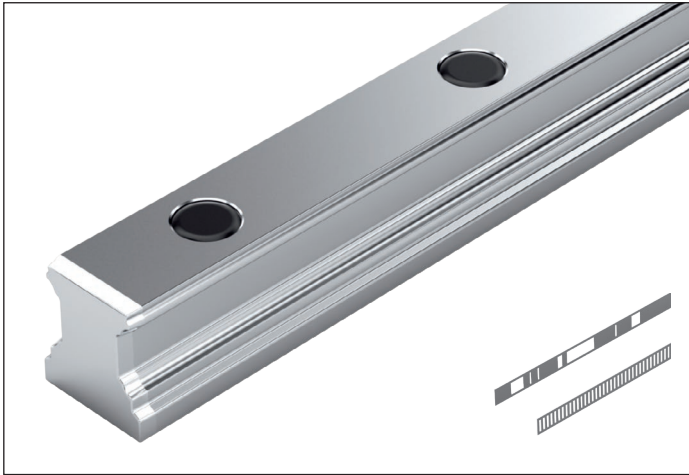
²⁾ For end spaces below T_{1 min}, no threaded holes in end faces possible. Secure the cover strip.

³⁾ Recommended: preferred dimension T₁₅ with tolerances ±0.75.

⁴⁾ Due to the manufacturing process, a smooth bottom surface (without bottom groove) may be present.

⁵⁾ Dimension H₂ without cover strip

Ball guide rails SNS with plastic caps



- ▶ For bolting from above, with plastic caps
- ▶ With integrated scale

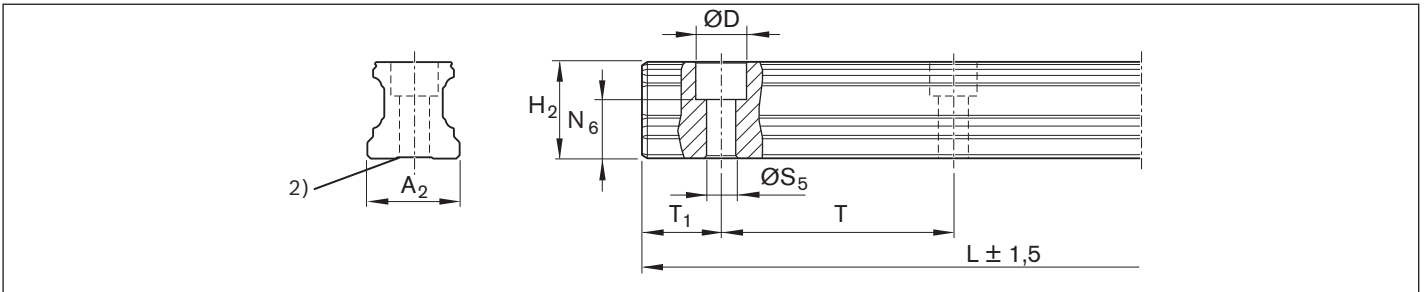
Notes:

- ▶ Plastic caps included in scope of supply.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SNS	Size										
	20		25		30		35		45		
	P	S	P	S	P	S	P	S	P	S	
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions



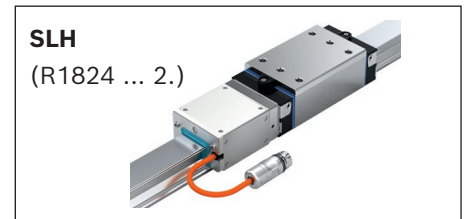
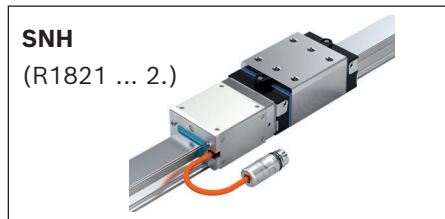
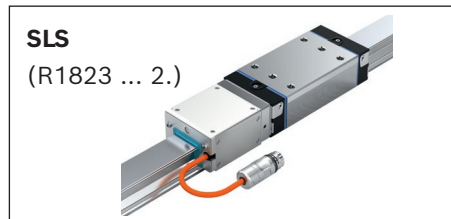
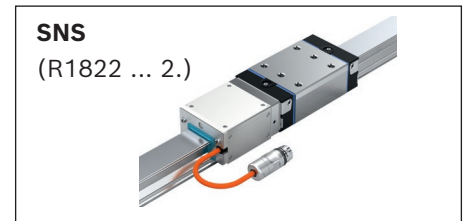
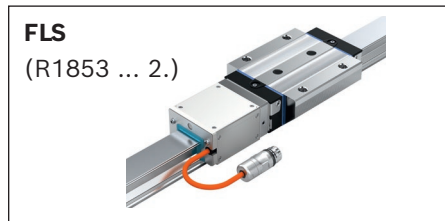
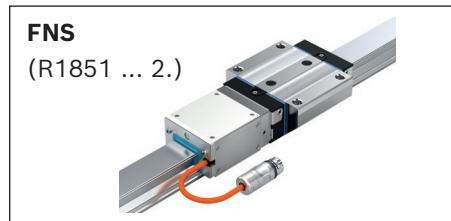
Dimensions (mm)

Size	A ₂	D	H ₂	L _{min}	L _{max}	N ₆ ^{±0.5}	S ₅	T	T _{1 min}	T _{1S} ¹⁾	T _{1 max}	Mass m (kg/m)
20	20	9.4	20.55	220	4 500	13.2	6.0	60	10	28.0	50	2.4
25	23	11.0	24.25	240	4 500	15.2	7.0	60	10	28.0	50	3.2
30	28	15.0	28.35	250	4 500	17.0	9.0	80	12	38.0	68	5.0
35	34	15.0	31.85	270	4 500	20.5	9.0	80	12	38.0	68	6.8
45	45	20.0	39.85	310	4 500	23.5	14.0	105	16	50.5	89	10.5

¹⁾Recommended: preferred dimension T_{1S} with tolerances ±0.75.

²⁾Due to the manufacturing process, a smooth bottom surface (without bottom groove) may be present.

Product overview and type designations for roller runner blocks



Available versions

Roller runner block	Size															
	35				45				55				65			
	P		S		P		S		P		S		P		S	
	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3
FNS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FLS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SNS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SLS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SNH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
SLH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				

✓ = available versions

Type designation for roller runner block with IMS-A (example)

I	M	S	2	A	-	R	W	D	-	0	3	5	-	F	N	S	-	C	2	-	S	-	D	S	-	0	-	R	-	xx	-	A	-	1	0	0	-	D										
										1				2				3				4				5		6				7				8				9				10				11

See interface option

1 Size

Characteristic	Designation
035	Size 35
045	Size 45
055	Size 55
065	Size 65 (for IMS-A only)

2 Format

Characteristic	Designation
FNS	Flanged, normal, standard height
FLS	Flanged, long, standard height
SNS	Slimline, normal, standard height
SLS	Slimline, long, standard height
SNH	Slimline, normal, high
SLH	Slimline, long, high

3 Preload class

Characteristic	Designation
C2	Preload class C2
C3	Preload class C3

4 Accuracy class

Characteristic	Designation
P	Precision
S	Super precision (SP)

5 Seal

Characteristic	Designation
DS	Double lipped seal

6 Roller chain

Characteristic	Designation
0	Without roller chain

7 Scanner mounting side

Characteristic	Designation
R	Right
L	Left

8 Interface

IMS-A

Characteristic	Designation
HF	HIPERFACE®
BI	BiSS-C
B4	BiSS-C, +/- 16g
DQ	DRIVE-CLiQ
D4	DRIVE-CLiQ, +/- 16g
FN	FANUC <i>αi</i>
S1	SSI 10 μm
S2	SSI 1 μm
S3	SSI 0.25 μm
S4	SSI 0.125 μm

9 Connector type

Characteristic	Designation
A	RGS 1722
B	RGS 1714
C	M12 / 8-pin (DRIVE-CLiQ only)
D	M23 / 17-pin (FANUC only)
H	M12 / 8-pin (BiSS-C only)

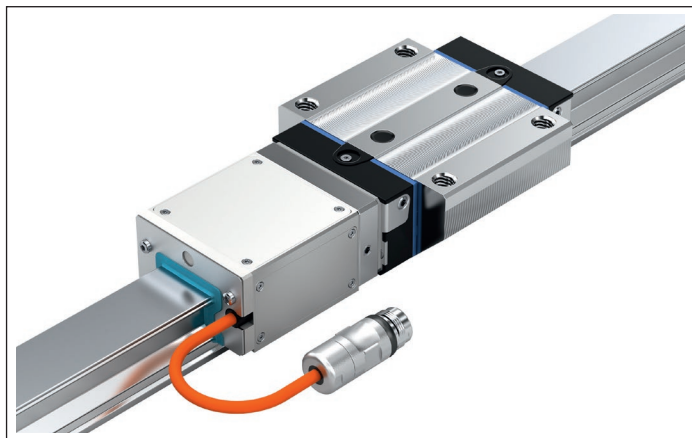
10 Cable length

Characteristic	Designation
100	1.0 meters

11 Documentation

Characteristic	Designation
D	Standard documentation

Roller runner block FNS



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Preserved (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Roller runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

FNS	Size															
	35				45				55				65			
	P		S		P		S		P		S		P		S	
	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

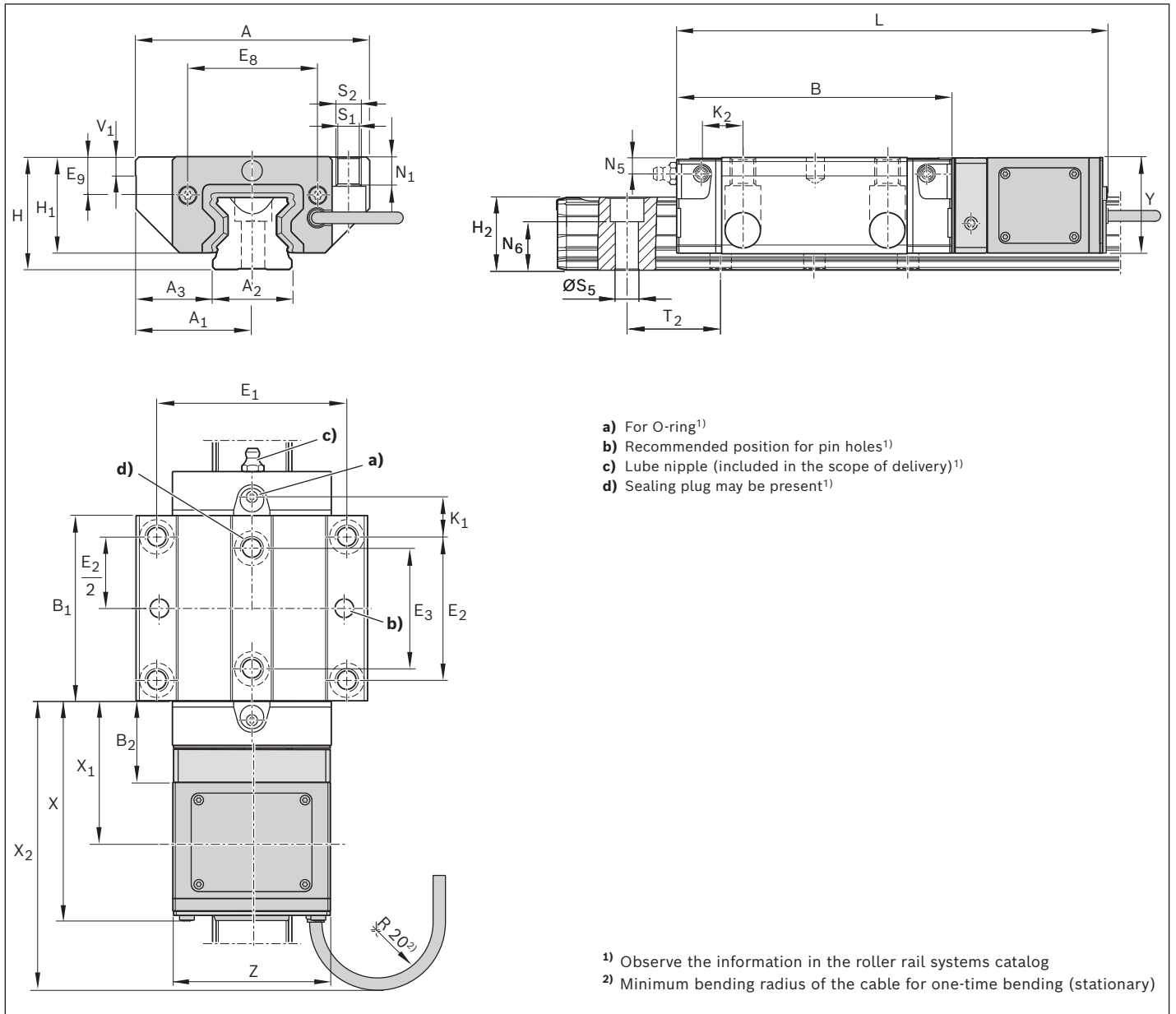
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₃	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁
35	100	50	34	33.0	118.00	79.6	31.45	82	62	52	50.30	13.10	48	41	31.10	30.80	15.55
45	120	60	45	37.5	147.00	101.5	35.00	100	80	60	62.90	16.70	60	51	39.10	38.80	17.45
55	140	70	53	43.5	170.65	123.1	38.03	116	95	70	74.20	18.85	70	58	47.85	47.55	21.75
65	170	85	63	53.5	207.30	146.0	46.65	142	110	82	35.00	9.30	90	76	58.15	57.85	30.00



Size	K ₂	L	N ₁	N ₅	N ₆ ^{±0.5}	∅S ₁	S ₂	∅S ₅	T ₂	V ₁	X	X ₁	X ₂	Y	Z
35	17.40	198.9	12	7.0	19.8	8.5	M10	9	40.0	8	99.60	61.45	124.60	40.00	63.8
45	20.35	229.6	15	8.0	22.8	10.4	M12	14	52.5	10	104.85	65.00	129.85	50.00	78.0
55	24.90	256.4	18	9.0	28.7	12.4	M14	16	60.0	12	109.03	68.03	134.03	56.35	91.4
65	33.00	293.3	23	9.3	36.5	14.6	M16	18	75.0	15	116.75	76.65	141.75	75.00	119.0

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

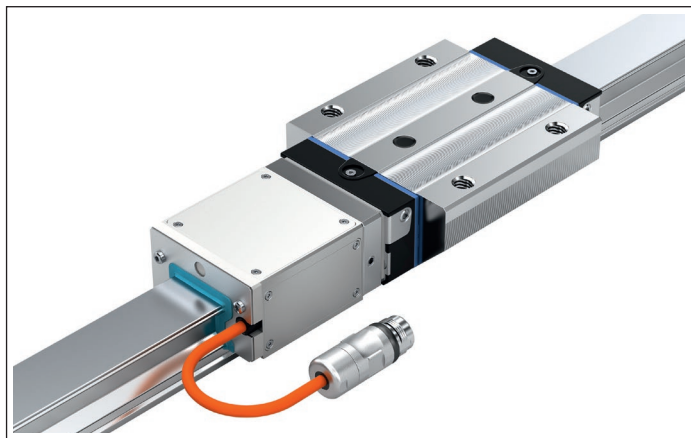


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class
	m		
		C2/C3	C2/C3
35	2.52	30 500	380
45	4.57	53 300	825
55	6.13	70 200	1 305
65	11.96	118 600	2 630

³⁾ Values for roller runner blocks with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the roller rail systems catalog must be used.

Roller runner block FLS



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Preserved (sufficient for mounting and commissioning).
For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Roller runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

FLS	Size															
	35				45				55				65			
	P		S		P		S		P		S		P		S	
C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

✓ = available versions

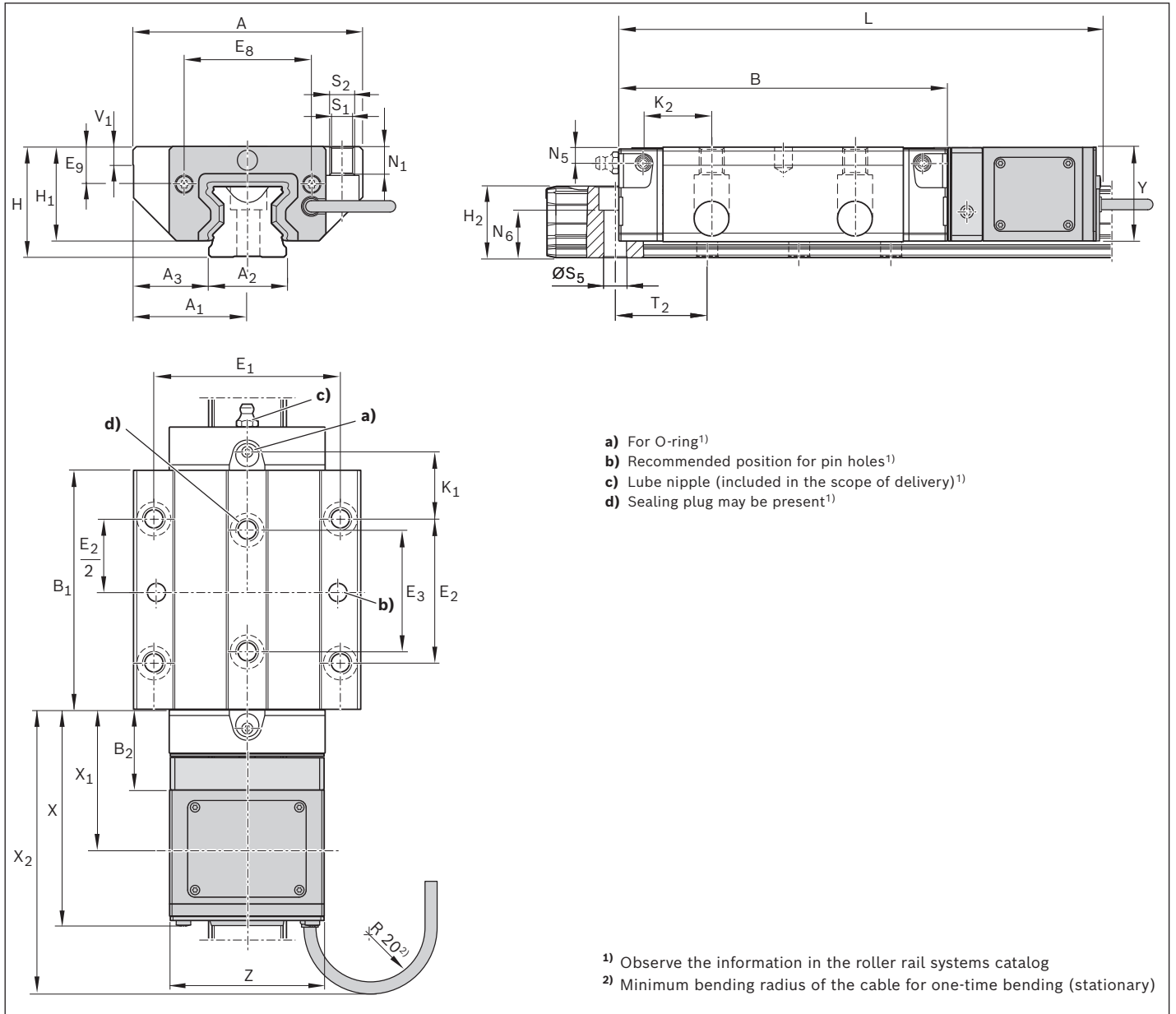
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₃	E ₄	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁
35	100	50	34	33.0	142.00	103.6	31.45	82	62	52	80	50.3	13.10	48	41	31.10	30.80	27.55
45	120	60	45	37.5	179.50	134.0	35.00	100	80	60	98	62.9	16.70	60	51	39.10	38.80	33.70
55	140	70	53	43.5	209.65	162.1	38.03	116	95	70	114	74.2	18.85	70	58	47.85	47.55	41.25
65	170	85	63	53.5	255.30	194.0	46.65	142	110	82	140	35.0	9.30	90	76	58.15	57.85	54.00

Size	K ₂	L	N ₁	N ₅	N ₆ ^{±0.5}	∅S ₁	S ₂	∅S ₅	T ₂	V ₁	X	X ₁	X ₂	Y	Z
35	29.4	222.6	12	7.0	19.8	8.5	M10	9	40.0	8	99.60	61.45	124.60	40.00	63.8
45	36.6	262.1	15	8.0	22.8	10.4	M12	14	52.5	10	104.85	65.00	129.85	50.00	78.0
55	44.4	295.4	18	9.0	28.7	12.4	M14	16	60.0	12	109.03	68.03	134.03	56.35	91.4
65	57.0	341.3	23	9.3	36.5	14.6	M16	18	75.0	15	116.75	76.65	141.75	75.00	119.0

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

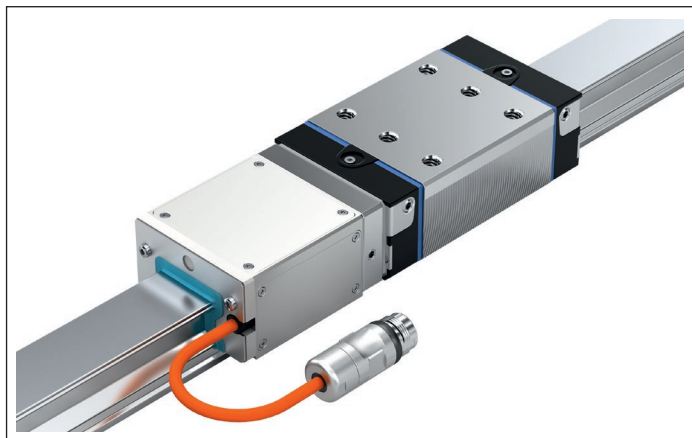


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class
	m		
		C2/C3	C2/C3
35	3.07	37 450	610
45	5.67	66 150	1 345
55	7.84	87 000	2 210
65	15.42	147 950	4 435

³⁾ Values for roller runner blocks with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the roller rail systems catalog must be used.

Roller runner block SNS



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Preserved (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Roller runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SNS	Size															
	35				45				55				65			
	P		S		P		S		P		S		P		S	
	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

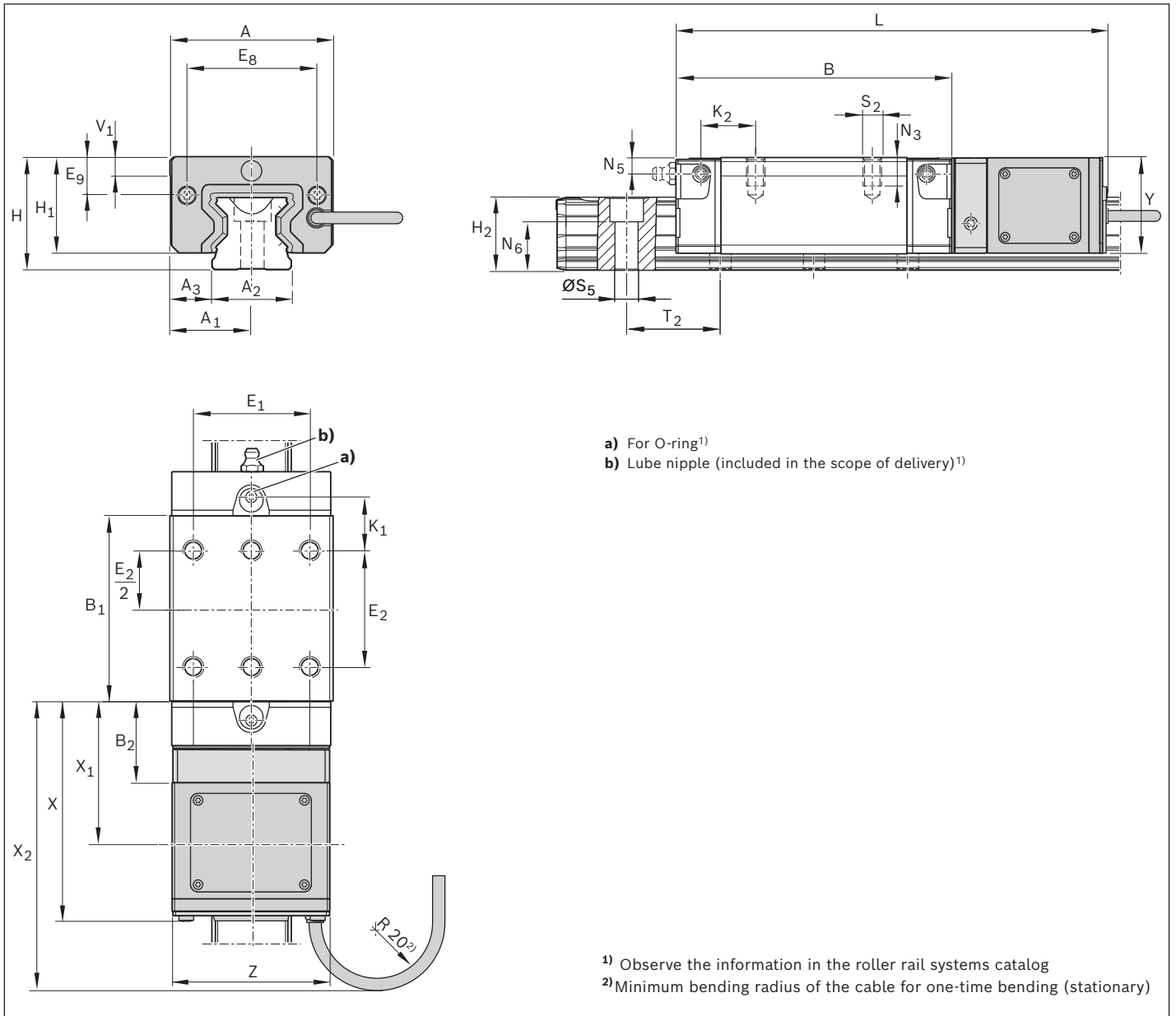
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁
35	70	35	34	18.0	118.00	79.6	31.45	50	50	50.3	13.10	48	41	31.10	30.80	21.55
45	86	43	45	20.5	147.00	101.5	35.00	60	60	62.9	16.70	60	51	39.10	38.80	27.45
55	100	50	53	23.5	170.65	123.1	38.03	75	75	74.2	18.85	70	58	47.85	47.55	31.75
65	126	63	63	31.5	207.30	146.0	46.65	76	70	35.0	9.30	90	76	58.15	57.85	50.00

Size	K ₂	L	N ₃	N ₅	N ₆ ^{±0.5}	S ₂	∅S ₅	T ₂	V ₁	X	X ₁	X ₂	Y	Z
35	23.40	198.9	12	7.0	19.8	M8	9	40.0	8	99.60	61.45	124.60	40.00	63.8
45	30.35	229.6	18	8.0	22.8	M10	14	52.5	10	104.85	65.00	129.85	50.00	78.0
55	34.90	256.4	17	9.0	28.7	M12	16	60.0	12	109.03	68.03	134.03	56.35	91.4
65	53.00	293.3	21	9.3	36.5	M16	18	75.0	15	116.75	76.65	141.75	75.00	119.0

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

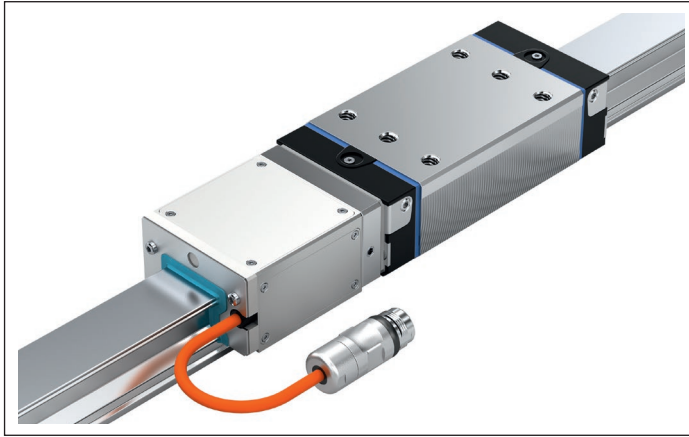


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class
	m		
		C2/C3	C2/C3
35	1.92	30 500	380
45	3.42	53 300	825
55	4.83	70 200	1 305
65	9.36	118 600	2 630

³⁾ Values for roller runner blocks with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the roller rail systems catalog must be used.

Roller runner block SLS



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Preserved (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Roller runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SLS	Size															
	35				45				55				65			
	P		S		P		S		P		S		P		S	
	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

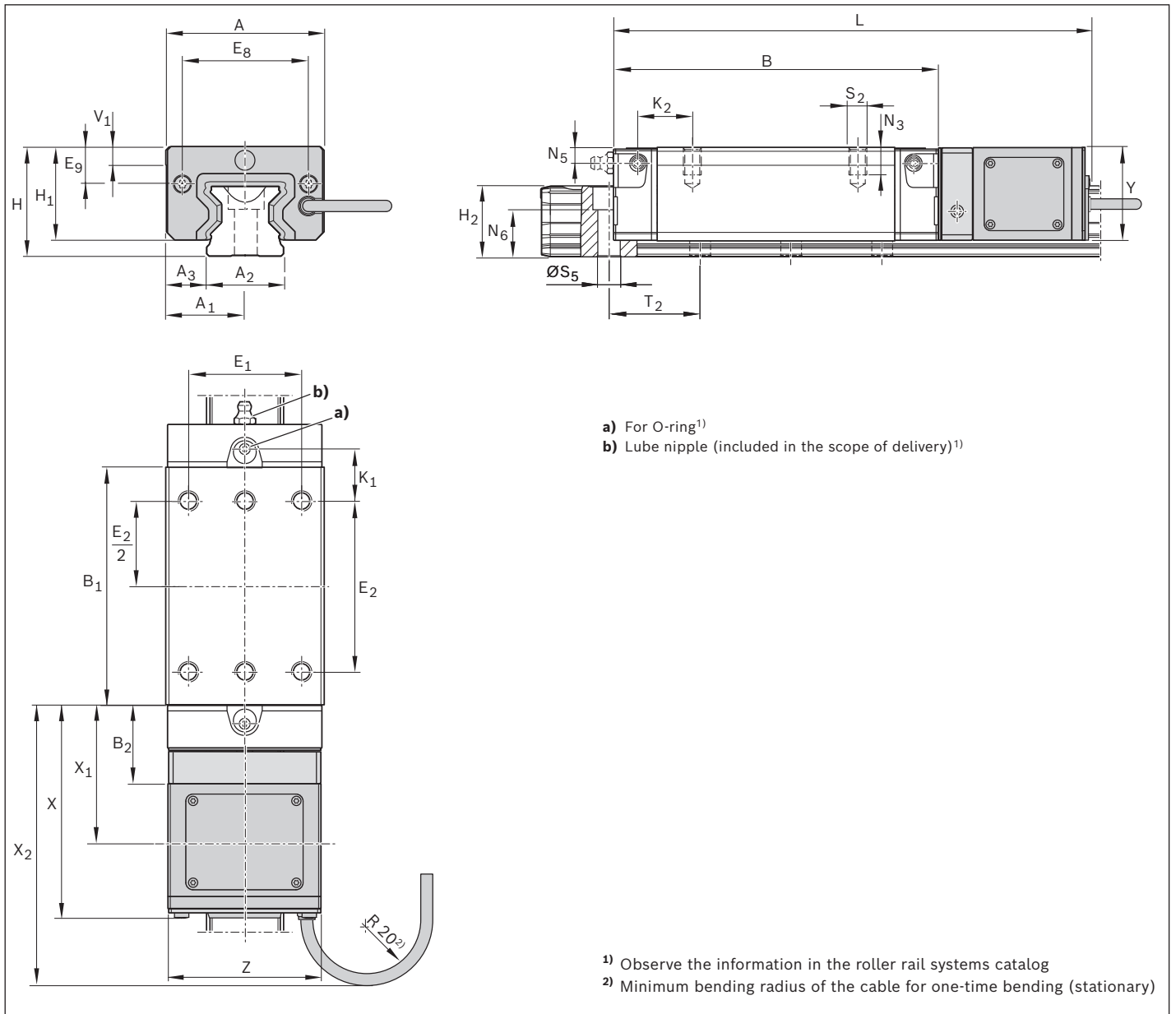
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁
35	70	35	34	18.0	142.00	103.6	31.45	50	72	50.3	13.10	48	41	31.10	30.80	22.55
45	86	43	45	20.5	179.50	134.0	35.00	60	80	62.9	16.70	60	51	39.10	38.80	33.70
55	100	50	53	23.5	209.65	162.1	38.03	75	95	74.2	18.85	70	58	47.85	47.55	41.25
65	126	63	63	31.5	255.30	194.0	46.65	76	120	35.0	9.30	90	76	58.15	57.85	49.00

Size	K ₂	L	N ₃	N ₅	N ₆ ^{±0.5}	S ₂	ØS ₅	T ₂	V ₁	X	X ₁	X ₂	Y	Z
35	24.4	222.6	12	7.0	19.8	M8	9	40.0	8	99.60	61.45	124.60	40.00	63.8
45	36.6	262.1	18	8.0	22.8	M10	14	52.5	10	104.85	65.00	129.85	50.00	78.0
55	44.4	295.4	17	9.0	28.7	M12	16	60.0	12	109.03	68.03	134.03	56.35	91.4
65	52.0	341.3	21	9.3	36.5	M16	18	75.0	15	116.75	76.65	141.75	75.00	119.0

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

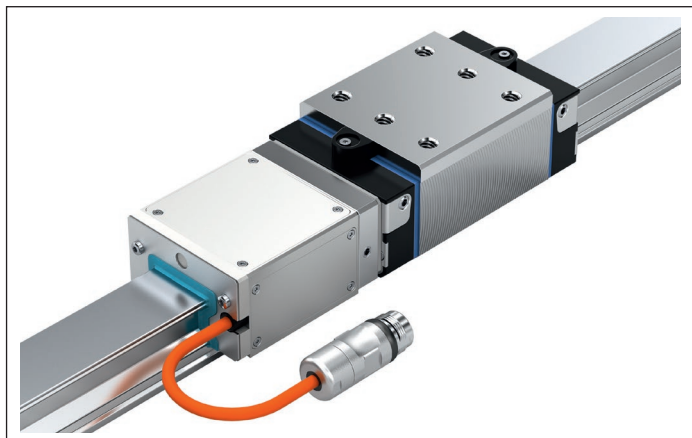


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class
35	2.32	37 450	610
45	4.17	66 150	1 345
55	5.99	87 000	2 210
65	11.92	147 950	4 435

³⁾ Values for roller runner blocks with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the roller rail systems catalog must be used.

Roller runner block SNH



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Preserved (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Roller runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SNH	Size											
	35				45				55			
	P		S		P		S		P		S	
C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

✓ = available versions

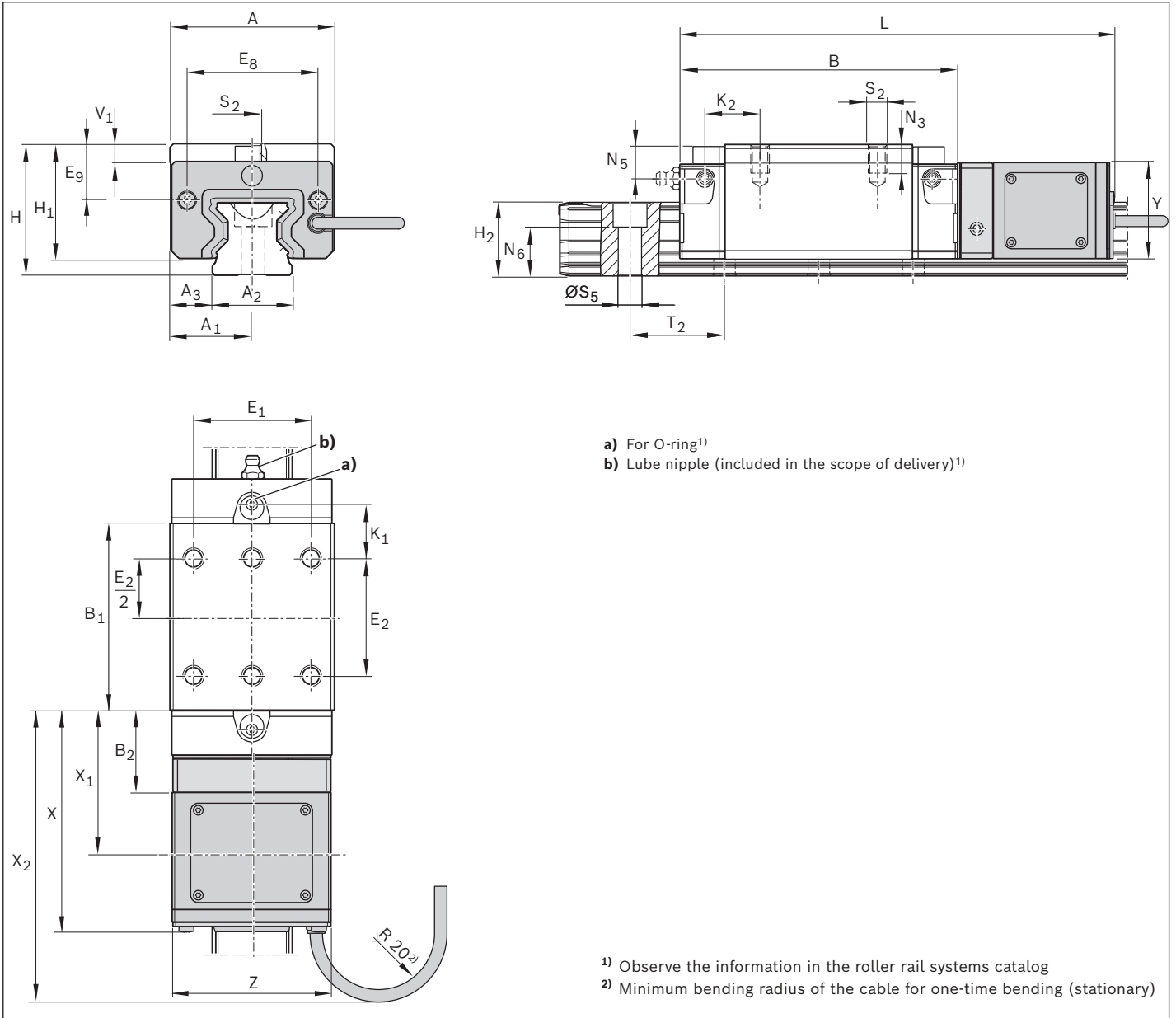
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁
35	70	35	34	18.0	118.00	79.6	31.45	50	50	50.3	20.10	55	48	31.10	30.80	21.55
45	86	43	45	20.5	147.00	101.5	35.00	60	60	62.9	26.70	70	61	39.10	38.80	27.45
55	100	50	53	23.5	170.65	123.1	38.03	75	75	74.2	28.85	80	68	47.85	47.55	31.75



Size	K ₂	L	N ₃	N ₅	N ₆ ^{±0.5}	S ₂	∅S ₅	T ₂	V ₁	X	X ₁	X ₂	Y	Z
35	23.40	198.9	13	14	19.8	M8	9	40.0	8	99.60	61.45	124.60	40.00	63.8
45	30.35	229.6	18	18	22.8	M10	14	52.5	10	104.85	65.00	129.85	50.00	78.0
55	34.90	256.4	19	19	28.7	M12	16	60.0	12	109.03	68.03	134.03	56.35	91.4

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip

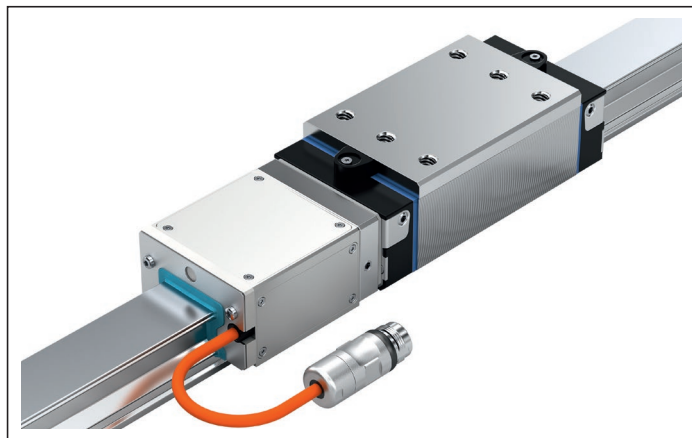


Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class
	m		M_Z max 
		C2/C3	C2/C3
35	2.22	30 500	380
45	3.87	53 300	825
55	5.73	70 200	1 305

³⁾ Values for roller runner blocks with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the roller rail systems catalog must be used.

Roller runner block SLH



Dynamic characteristics

See chapter "Description and technical data of the overall system."

Notes:

- ▶ Preserved (sufficient for mounting and commissioning). For more information on lubrication, see chapter "Maintenance instructions."
- ▶ Delivery: Roller runner block with mounted adapter plate and mounted scanner. Lube nipple included.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

SLH	Size														
	35				45				55						
	P		S		P		S		P		S				
	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3	C2	C3			
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

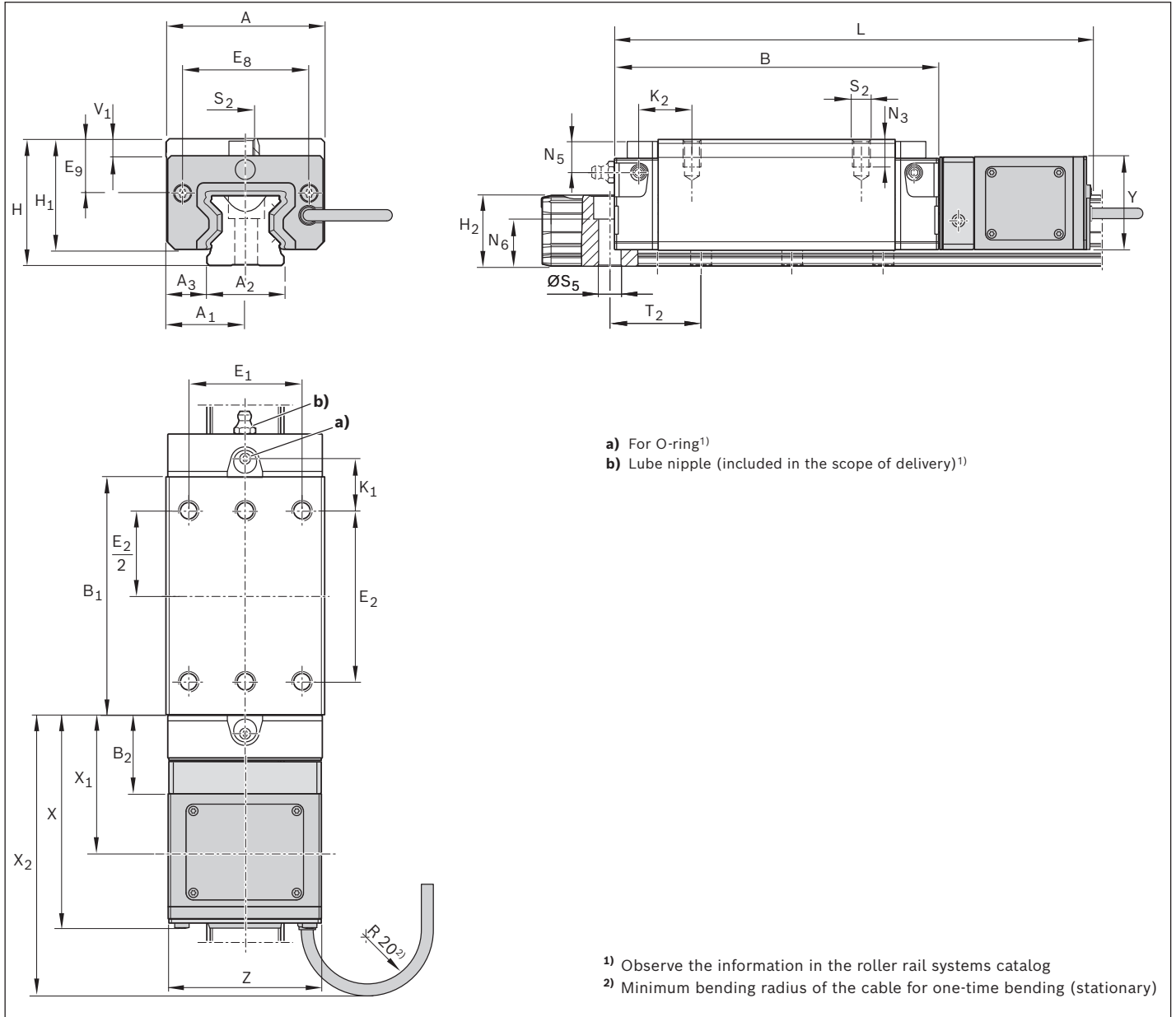
Dimensions (mm)

Size	A	A ₁	A ₂	A ₃	B	B ₁	B ₂	E ₁	E ₂	E ₈	E ₉	H	H ₁	H ₂ ¹⁾	H ₂ ²⁾	K ₁
35	70	35	34	18.0	142.00	103.6	31.45	50	72	50.3	20.10	55	48	31.10	30.80	22.55
45	86	43	45	20.5	179.50	134.0	35.00	60	80	62.9	26.70	70	61	39.10	38.80	33.70
55	100	50	53	23.5	209.65	162.1	38.03	75	95	74.2	28.85	80	68	47.85	47.55	41.25



Size	L	K ₂	N ₃	N ₅	N ₆ ^{+0.5}	S ₂	∅S ₅	T ₂	V ₁	X	X ₁	X ₂	Y	Z
35	222.6	24.4	13	14	19.8	M8	9	40.0	8	99.60	61.45	124.60	40.00	63.8
45	262.1	36.6	18	18	22.8	M10	14	52.5	10	104.85	65.00	129.85	50.00	78.0
55	295.4	44.4	19	19	28.7	M12	16	60.0	12	109.03	68.03	134.03	56.35	91.4

¹⁾Dimension H₂ with cover strip

²⁾Dimension H₂ without cover strip



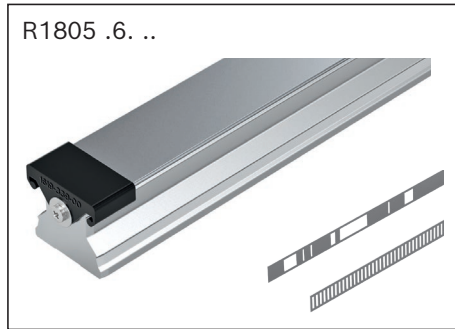
Technical data

Size	Mass (kg)	Max. permissible load ³⁾ (N) for preload class	Max permissible moment load ³⁾ (Nm) for preload class
	m		M_Z max 
		C2/C3	C2/C3
35	2.72	37 450	610
45	4.97	66 150	1 345
55	7.24	87 000	2 210

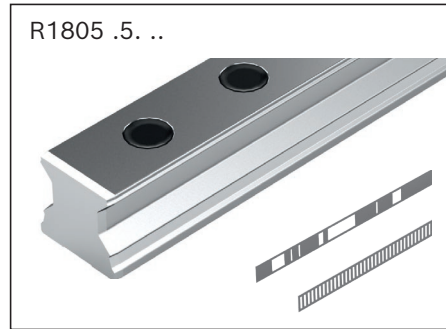
³⁾ Values for roller runner blocks with mounted scanner. These values ensure that the application functions reliably. Exceeding these values can lead to destruction. For a life expectancy calculation, the values from the roller rail systems catalog must be used.

Product overview and type designations for roller guide rails

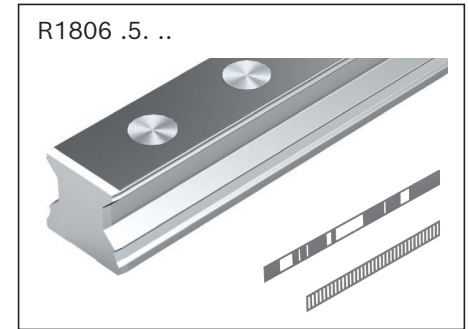
Roller guide rails with cover strip and protective caps and integrated scale



Roller guide rails with plastic caps¹⁾ and integrated scale



Roller guide rails with steel caps and integrated scale



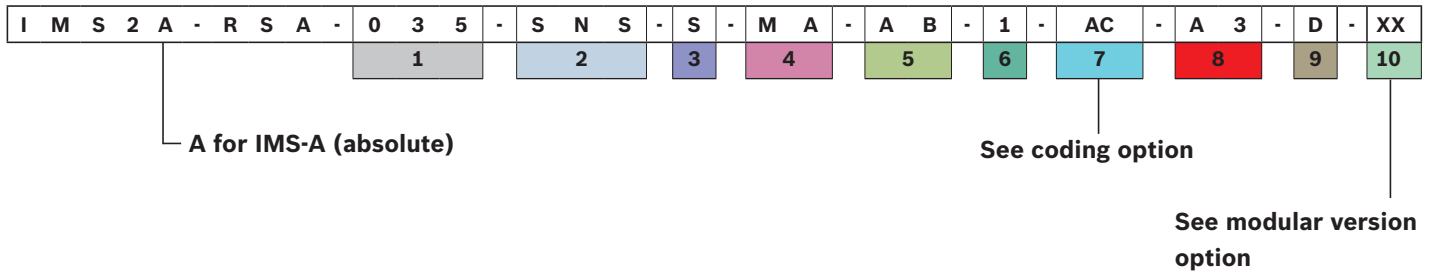
¹⁾only for applications without exposure to dirt and dust

Available versions

Roller guide rail SNS	Size								
	35		45		55		65		
	P	S	P	S	P	S	P	S	
	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions

Type designation for roller guide rail with scale (example)



1 Size	Characteristic	Designation
	035	Size 35
	045	Size 45
	055	Size 55
	065	Size 65

2 Format	Characteristic	Designation
	SNS	Slimline, normal, standard height
	SNO	SNS without bottom groove (on request)

3 Accuracy class	Characteristic	Designation
	P	Precision
	S	Super precision (SP)

4 Fastening	Characteristic	Designation
	MA	Bolting from above

5 Cover

Characteristic	Designation
AB	With cover strip and protective caps
AK	With plastic caps
SK	With steel caps
AP	For cover strip and protective caps (only for modular version)

7 Coding

Characteristic	Designation
IMS-A	
AC	With absolute code band
NC	Without measuring function (only for modular version)

9 Documentation

Characteristic	Designation
D	Standard documentation

6 Number of sections

Characteristic	Designation
1	Number of sections

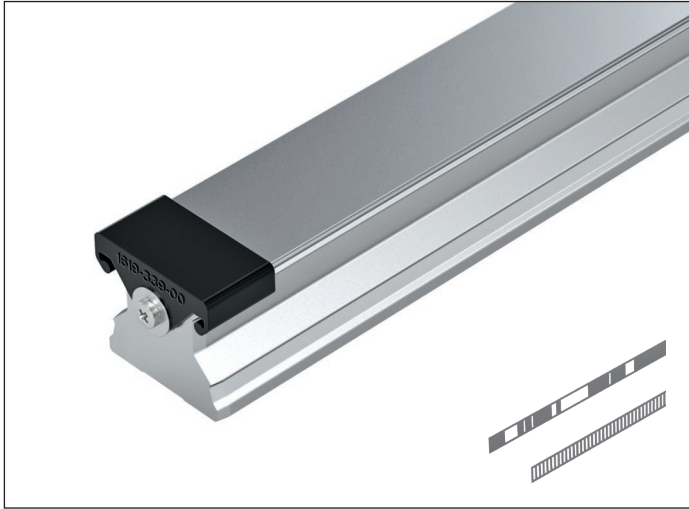
8 Accuracy class

Characteristic	Designation
A3	3 µm
A5	5 µm
00	Without measuring function (only for modular version)

10 Modular version

Characteristic	Designation
ME	Modular end piece, joint at T2
MM	Modular middle piece
MA	Modular end piece, joint at T1

Roller guide rail SNS with cover strip and protective caps



- ▶ For bolting from above, with cover strip made of corrosion-resistant spring steel per DIN EN 10088 and screw-down plastic protective caps (with end-face thread bore hole)
- ▶ With integrated scale

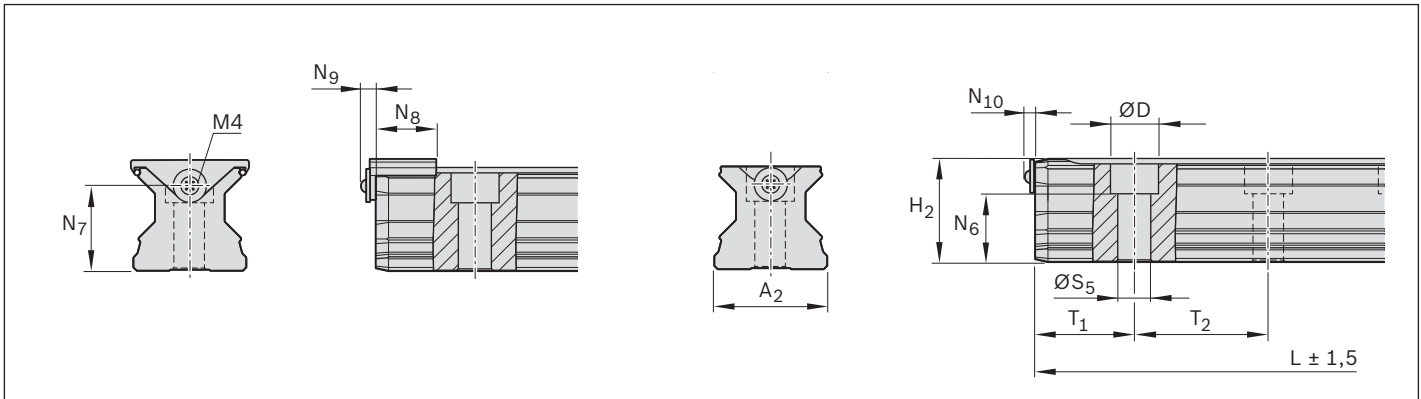
Notes

- ▶ Secure the cover strip!
- ▶ As an alternative, the cover strip can be secured with screws and washers.
- ▶ Protective caps with screws and washers are included in the scope of delivery.
- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ For ordering example, see chapter "Ordering example."

Available versions

Roller guide rail SNS	Size								
	35		45		55		65		
	P	S	P	S	P	S	P	S	
	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions



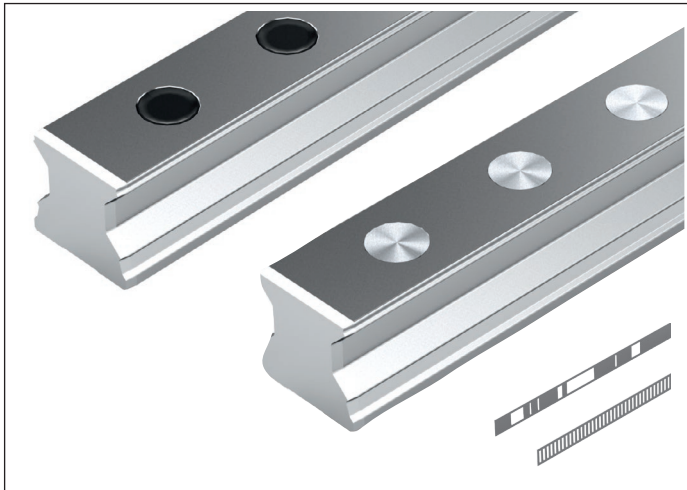
Dimensions (mm)

Size	A ₂	D	H ₂ ¹⁾	L _{min}	L _{max}	N ₆	N ₇	N ₈	N ₉	N ₁₀	ØS ₅	T _{1 min}	T _{1 s} ²⁾	T _{1 max}	T ₂	Mass m (kg/m)
35	34	15	31.10	312	3 996	19.4	22	18	7	4.10	9	16	18.00	28.0	40.0	6.3
45	45	20	39.10	351	3 986	22.4	30	20	7	4.10	14	18	24.25	36.5	52.5	10.3
55	53	24	47.85	400	3 956	28.7	30	20	7	4.35	16	20	28.00	42.0	60.0	13.1
65	63	26	58.15	430	3 971	36.5	40	20	7	4.35	18	21	35.50	55.0	75.0	17.4

¹⁾Dimension H₂ with cover strip

²⁾Preferred dimension T_{1s} with tolerances +0.5/-1.0

Roller guide rail SNS with plastic or steel caps



- ▶ For bolting from above:
 - With plastic caps included in the delivery
 - For steel caps (not included in the delivery, order separately)
- ▶ With integrated scale

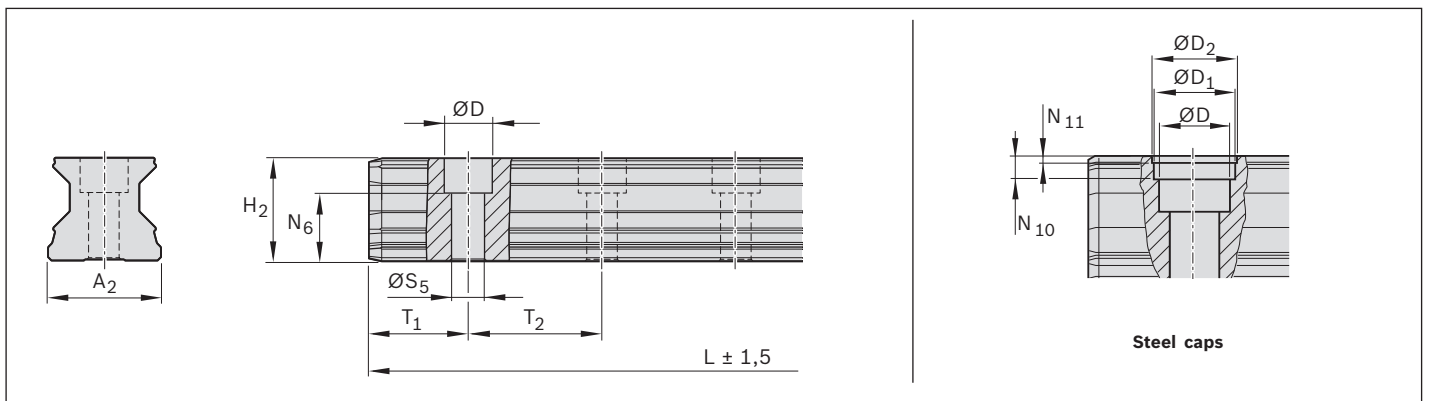
Notes

- ▶ Observe the instructions for mounting. See chapter "Instructions for mounting."
- ▶ Also order the mounting tool for steel caps (see roller rail systems catalog)!
- ▶ For ordering example, see chapter "Ordering example."

Available versions

Roller guide rail SNS	Size								
	35		45		55		65		
	P	S	P	S	P	S	P	S	
	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ = available versions



Dimensions (mm)

Size	A ₂	D	D ₁	D ₂	H ₂	L _{min}	L _{max}	N ₆ ^{±0.5}	N ₁₀	N ₁₁	∅S ₅	T _{1 min}	T _{1 S¹}	T _{1 max}	T ₂	Mass (kg/m)
35	34	15	17.55	18	30.80	270	3 996	19.4	3.6	0.90	9	12	18.00	28.0	40.0	6.3
45	45	20	22.55	23	38.80	310	3 986	22.4	8.0	1.45	14	16	24.25	36.5	52.5	10.3
55	53	24	27.55	28	47.55	350	3 956	28.7	8.0	1.45	16	18	28.00	42.0	60.0	13.1
65	63	26	29.55	30	57.85	420	3 971	36.5	8.0	1.45	18	20	35.50	55.0	75.0	17.4

¹⁾Preferred dimension T_{1S} with tolerances +0.5/-1.0

Cables

Connection cable for HIPERFACE® (absolute) and 1Vss (incremental) interfaces

RKG 0055 connection cable to Rexroth multi-encoder interface EC
(M17 ↓ EC interface (12 V DC))



RKG 0057 extension cable (M17 ↓ M17)



RKG 0058 extension cable (open cable end)



RGS 1711 single connector for self-assembly M17

**Cable lengths**

Length (m)	0.5	2	3	5	8	10	15	20
Cable	Material number							
RKG 0055	R911376423	R911341075	R911341076	R911342688	R911342689	R911347202	R911347204	R911347205
RKG 0057	R911344382	R911342692	R911341134	R911342693	R911342694	R911369771	R911341135	R911341136
RKG 0058		R911342695	R911341110	R911342696	R911342684	R911347720	R911347721	R911347722

Connector

RGS 1711	R911342383							
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Data encoder cable REG0011

RoHS	Compliant pursuant to EU Directive 2002/95/EC
AWM Style (UL)	20233
Diameter	10.0 ^{±0.3} mm
Cable sheath material	PUR
Cable sheath color	RAL2003 (orange)
Specific cable weight	0.027 kg/m
Oil resistance	EN 60811-2-1 and EN 50363-10-2
Burning behavior	UL 758, section 40, Cable Flame Test Section 1061 as per UL 1581 and CSA C22.2 No. 210-05 Sec. 8.8.2. test according to DIN EN 60332-1-2
Bending cycles	5 million
Bending radius for flexible installation	75 mm
Bending radius for fixed installation	40 mm

Connection cable for BiSS-C interface

Connection cable to Rexroth multi-encoder interface "EC"
(M12 ⚡ 15-pin, Sub-D)



Extension cable (M12 ⚡ M12)



Extension cable with open cable end
(M12 ⚡ open)



Cable lengths

Length (m)	3	5	10	20
Cable	Material number			
Connection cable (M12 -> 15-pin, SUB-D)	R348115405	R348115505	R348115605	R348115705
Extension cable (M12 -> M12)	R348115805	R348115905	R348116005	R348116105
Extension cable (M12 -> open)	R348116205	R348116305	R348116405	R348116505

Data BiSS-C encoder cable Lif9YC11Y, 5x2x0.09 mm² (AWG 28)

RoHS	Compliant pursuant to EU Directive 2002/95/EC
AWM Style (UL)	20549/10954
Diameter	5.0 ^{-0.2} mm
Cable sheath material	PUR
Cable sheath color	RAL2003 (orange)
Specific cable weight	0.046 kg/m
Bending cycles	2 million bending cycles at 75 mm bending radius (tested at a = 3 m/s ² and v = 2.5 m/s)
Bending radius for flexible installation	50 mm
Bending radius for fixed installation	25 mm

Other cable lengths on request

For further technical data/cable description, see instructions for electrical IMS interfaces R320103166.

Maximum cable length IMS-I For connection to Rexroth IndraDrive drive controllers:

Encoder interface EC (12 V DC power supply): maximum length is 75 m

Encoder interface EN2 interface (5 V DC power supply): maximum length is 50 m.

For connection to other evaluation electronics:Signal type I1 (1 V_{ss}, current consumption of 300 mA):

Voltage drop over 75 m cable length is 2.05 V, i.e. the sensor supply voltage of the evaluation electronics must be able to be set to at least 6.8 V (e.g. by sense control).

Signal type I2, I3, I4 (TTL, current consumption of 350 mA):

Voltage drop over 75 m cable length is 2.30 V, i.e. the sensor supply voltage of the evaluation electronics must be able to be set to at least 7.05 V (e.g. by sense control).

REG0011			
Maximum cable length IMS-A	Interface	Length (m)	Clock frequency (MHz)
	HF	75	–
	SSI	10	2.00
		48	1.00
		74	0.75
	DQ	according to Siemens specifications	
	FN	48 m (when using FANUC cable LX660-4077-T321)	
	BiSS-C	75	

Please note that the cable length can be additionally limited by:

- ▶ Connectors (> 2 pieces)
- ▶ EMC behavior

Observe the information in the project planning instructions for IndraDrive controllers and EMC project planning.

The overall length of the assembled cables is measured including the connectors.

For more information on connectors and cables, see the document "Rexroth Connection Cables IndraDrive and Indra Dyn" DOK-CONNECT-CABLE*INDRV-CA03-EN-P, R911322949 en-US, 09/07/2013.

Cable for DRIVE-CLiQ

For IMS with the interface option "DQ" (DRIVE-CLiQ), we recommend MOTION-CONNECT DRIVE-CLiQ cables with M12 connectors for direct measuring systems from the Siemens range of accessories.

Cable for FANUC α i

For IMS with the interface option "FN" (FANUC) we recommend the FANUC cable: LX660-4077-T321

Safety instructions

General notes

- ▶ Combinations of different accuracy classes

Combining guide rails and runner blocks of different accuracy classes results in different tolerances for the dimensions H and A3. See the relevant main catalog.

Intended use

Rail Systems are linear guides capable of absorbing forces from all transverse directions and moments about all axes. Rail Systems are intended exclusively for guiding and positioning tasks when installed in a machine.

The integrated position measurement system (IMS for short) is an assembly. The IMS consists of components for precise linear movements and incremental measurements of linear displacement. The product may be used in accordance with the technical documentation (product catalog) for the following purposes:

- ▶ As a direct linear position measurement system in industrial environments (woodworking, laser welding, laser cutting, metal cutting and metal forming machine tools.
- ▶ As a linear encoder in applications with a linear motor.
- ▶ In interpolating axes in machine tools.
- ▶ In measuring machines within the scope of the achievable accuracy.
- ▶ For connection to display units, evaluation electronics for PCs and drive controllers.

The product is intended exclusively for professional use and not for private use.

The intended use also includes having read and understood the product documentation completely, in particular these "Safety instructions".

The product is exclusively intended for incorporation into a final machine or system or for assembling with other components to build a final machine or system.



The permissible operating conditions are determined by the individual components.

Misuse

Using the product in any other way than as described under intended use is considered to be misuse and is therefore not permitted.

The product may only be used in applications or environments constituting a hazard to the health and life of persons if this use – for example, in potentially explosive atmospheres covered by ATEX regulations – has been expressly specified and permitted in the product documentation.

Bosch Rexroth AG will not accept any liability for injury or damage caused by misuse of the product. The risks associated with any misuse of the product shall be borne by the user alone.

Misuse of the product includes:

- ▶ The transport of persons
- ▶ Use in potentially explosive atmospheres
- ▶ Use in direct contact with unpacked foodstuffs
- ▶ Use in liquids
- ▶ Use as a safety component, either mechanical or electrical
- ▶ Use in environments with increased radioactivity
- ▶ Use together with braking or clamping elements

General safety instructions

- ▶ The safety rules and regulations of the country in which the product is used must be observed.
- ▶ All current and applicable accident prevention and environmental regulations must be adhered to.
- ▶ The product may only be used when it is in technically perfect condition.
- ▶ The technical data and environmental conditions stated in the product documentation must be complied with.

- ▶ The product must not be put into service until it has been verified that the final product (for example a machine or system) into which the product has been installed complies with the country-specific requirements, safety regulations and standards for the application.
- ▶ Rexroth Rail Systems may not be used in zones with potentially explosive atmospheres as defined in the ATEX Directive 94/9/EC.
- ▶ Rexroth Rail Systems must never be altered or modified. The user may only perform the work described in the "Quick User Guide" or the "Mounting instructions for ball/ roller rail systems".
- ▶ The product is never allowed to be disassembled.
- ▶ At high travel speeds a certain amount of noise is caused by the product. If necessary, appropriate measures should be taken to protect hearing.
- ▶ The special safety requirements for specific sectors (e.g. crane construction, theaters, food technology) set forth in laws, directives and standards must be complied with.
- ▶ In all cases, the provisions of the following standard should be noted and followed: DIN 637, Safety regulations for dimensioning and operation of Profiled Rail Systems with recirculating rolling elements.

Directives and standards

Rexroth rail systems are suitable for dynamic linear applications requiring reliability and high precision. The machine tool industry and other sectors must observe a series of standards and directives. These requirements can vary significantly worldwide. It is therefore essential to understand the legislation and standards that apply in each particular region.

DIN EN ISO 12100

This standard describes the safety of machinery – general principles for design, risk assessment and risk reduction. It gives a general overview and contains a guide to the major developments governing machines and their intended use.

Directive 2006/42/EC

The European machinery directive describes the basic safety and health requirements for the structural design and manufacture of machinery. The manufacturer of a machine or their authorized representative has a duty to ensure that a risk assessment has been performed in order to determine the health and safety requirements which have to be fulfilled for that machine. The machine must be designed and built taking into account the results of the risk assessment.

Directive 2001/95/EC

This directive covers general safety requirements for any product placed on the market and intended for consumers, or likely to be used by consumers under reasonably foreseeable conditions, including products that are made available to consumers in the context of service provision for use by them.

Directive 2024/2853/EU

This directive concerns the liability for defective products and applies to industrially manufactured movable objects, irrespective of whether or not they have been incorporated into another movable or immovable object.

REGULATION (EC) No. 1907/2006 (REACH)

This regulation relates to restrictions on the marketing and use of certain dangerous substances and preparations. Substances means chemical elements and their compounds as they occur in the natural state or as produced by industry. Preparations means mixtures or solutions composed of two or more substances.

Ordering example roller rail systems IMS-A

Roller runner block (RWD)

I	M	S	2	A	-	R	W	D	-	0	3	5	-	F	N	S	-	C	2	-	S	-	D	S	-	0	-	R	-	S	1	-	A	-	1	0	0	-	D
										1				2				3			4		5		6		7		8		9				10				11

Ordering data			
Characteristic	Designation		Description
	IMS2A-RWD	Version	Roller runner block with mounted scanner (absolute)
1	035	Size	Size 35
2	FNS	Design	Flanged, normal, standard height
3	C2	Preload class	Preload class C2
4	S	Accuracy class	Super precision
5	DS	Seal	Double lipped
6	0	Roller chain	Without roller chain
7	R	Scanner mounting side	Scanner mounted on the right
8	S1	Interface	SSI, 10 µm
9	A	Connector type	RGS 1722
10	100	Cable length	Cable length 1 m
11	D	Documentation	Standard documentation

Roller guide rail (RSA)

I	M	S	2	A	-	R	S	A	-	0	3	5	-	S	N	S	-	S	-	M	A	-	A	B	-	1	-	AC	-	A	3	-	D	-	MA
										1				2				3			4		5		6		7		8		9				10

Ordering data			
Characteristic	Designation		Description
	IMS2A-RSA	Roller guide rail with scale	Roller guide rail with scale
1	035	Size	Size 35
2	SNS	Design	Slimline, normal, standard height
3	S	Accuracy class	Super precision
4	MA	Fastening	Bolting from above
5	AB	Cover	With cover strip and protective caps
6	1	Number of sections	One-piece guide rail
7	AC	Coding	Absolute code band
8	A3	Scale accuracy class	3 µm
9	D	Documentation	Standard documentation
10	MA	Modular version	Modular end piece, joint at T1

Rail length	1640 mm
T1	20 mm

Required ordering data:

IMS2A-RWD-035-FNS-C2-S-DS-0-R-S1-A-100-D

IMS2A-RSA-035-SNS-S-MA-AB-1-AC-A3-D-MA

Rail length : 1640 mm

T1 : 20 mm

Guide rails configurator IMS

rexroth
A Bosch Company

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Profile rails










Model code: [✎](#)

Material number: [✎](#)

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▼ Mechanical system design 1

IMS2 KSA Ball guide rail with integrated position measuring system 	IMS2 RSA Roller guide rail with integrated position measuring system 	IMS2-KSA Ball guide rail with integrated position measurement system IMScompact 	KSA High precision ball guide rail 	RSA High precision roller guide rail 	MSA Miniature ball guide rail 
LSA Cam roller guide rail 	KSE BSCL ball guide rail 	TCRS Temperature-controlled rail 			

▼ Sections

▼ Desired length

Runner block configurator IMS

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Runner Block



Model code: [✎](#)

Material number: [✎](#)

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▼ Mechanical format

KWD-IMS BSHP ball runner block with integrated measurement system 	RWD-IMS RSHP roller runner block with integrated measurement system 
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▼ Attachment elements pre-selection

▼ Front unit left (reference edge in front)

▼ Front unit right (reference edge in front)

▼ Lube connection (not mounted)

▼ Lube port CAD options

▼ Inscription

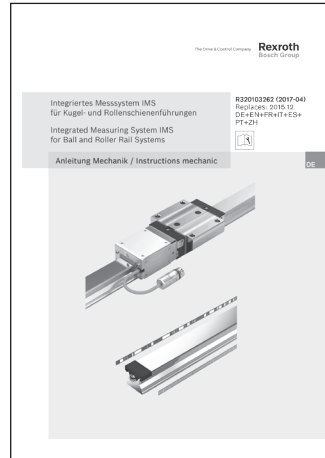
▼ Cable length

Instructions for mounting/maintenance

⚠ Always handle the measuring system with great care!

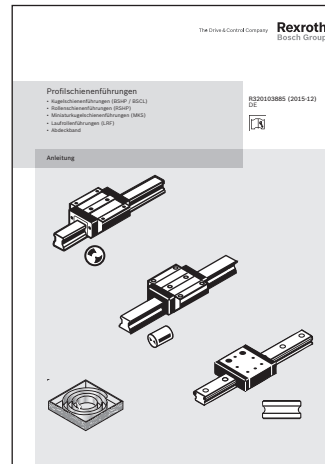
For detailed instructions for mounting, see

- ▶ **R320103262 Integrated measuring system – Instructions for mechanics**
- ▶ **R320103166 Integrated measuring system interface – Instructions for electrical interfaces**



- ▶ **R320103885 Instructions for profiled rail systems**

These documents are available under [Downloads](#).



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